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OBSERVATIONS ON BLADDER INVASION BY CERVICAL CANCER

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Bladder invasion by cervical cancer has received little attention in the recent British literature. Indeed only Dearing's[1] analysis of Stanley Way's results, and publications by Todd,[2] Strachan,[3] and Gemmell[4] deserve mention during the past 32 years.

Our experience in the treatment of more than 100 patients with cervical cancer a year** has impressed us sufficiently to submit a preliminary communication on this important subject.

RESUMÉ OF THE RELEVANT LITERATURE

Credit for first drawing attention to this subject is due to Williams[5] whose necropsy study of 78 cases of cervical cancer revealed bladder invasion in 56 with fistula formation in 29. More recent necropsy studies by Behney[6] and by Austen and Sala[7] have confirmed these findings — in their 2 series vesical fistulae were found in 22·3% and 30% of cases respectively.

From a clinical standpoint Ewing[8] stressed that the later stages of cervical cancer are typified by secondary invasion of neighbouring organs — particularly the bladder — with consequent ulceration; necrosis and fistula formation. There followed a masterly description of the typical cystoscopic findings in cervical cancer by Gemmell in 1928,[4] and subsequent publications by Graves, Kickham and Nathanson,[9] Todd,[2] and Dearing[1] have underlined the diagnostic and prognostic importance of cystoscopy.

Apart from carcinomatous invasion, however, surgery and, particularly, radiotherapy can produce serious bladder sequelae, and as late as 1929 the American College of Surgeons made the following statement after investigating 688 cases of cervical cancer: 'The danger of fistula formation is apparently increased by any method of treatment'.[10] Strachan,[3] however, came to the conclusion that in only a small proportion of cases could correctly applied radiotherapy be responsible for the formation of vesico-vaginal fistulae.

These radiation changes in the bladder were first described in detail by Dean in 1933,[11] and Colby[12] and Everett[13] subsequently found the incidence of severe bladder reactions to be 34·3% and 18% respectively among cured cases of cervical cancer. Everett *et al.*[14] and Kottmeier[15] agreed that there was a direct correlation between increasing dosage and severe post-radiation reaction; Everett *et al.*[14] found evidence of bladder disturbance in no less than 55% of their patients after radiotherapy.

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THE PRESENT STUDY

The case records of 150 patients with histologically proved carcinoma of the cervix who were admitted to the Department of Gynaecology of King Edward VIII Hospital (University of Natal), Durban, between August 1956 and August 1958, were examined.

Almost all these patients had had a full cystoscopic examination and had been 'staged' under anaesthesia by us, and the rest were examined by other senior members of the department. Radiotherapy, where used, followed the standard Manchester technique.

Every attempt was made to follow-up every patient at 1 month, at 3 months, and at 6-monthly intervals afterwards, but even so the follow-up rate has not been sufficiently high to assess the results of treatment with accuracy. This is true more especially of the earlier patients in this study. In any case, the period of follow-up is too short. It has been our experience, however, that the presence of a vesico-vaginal fistula is a potent factor in causing the return of treated patients, and we therefore believe that, unless moribund, the vast majority of patients with this complication have returned for treatment.

The cystoscopic appearances on the initial examination were graded into 4 main groups, based on the 6 types of change reported by Gemmell:[4]

Group O: In this group no significant abnormality was detected and the bladder was passed as normal.

Group A: In this group there were mainly circulatory changes such as hyperaemia or petechiae, which may be either local (trigonal) or general (cystitis), specific (bilharzia) or non-specific. Also in this group are included alterations in bladder shape due to extra-vesical pressure, usually resembling an accentuated uterine eminence. Both changes may exist together.

Group B: In this group were placed all cases where the bladder mucosa showed signs of oedema, either local (the transverse ridging of Gemmell), generalized, or diffuse. These changes were sometimes described as pseudo-trabeculation or cellule formation.

Group C: In this group were placed all cases where there was considered to be definite bladder-wall involvement by the growth.

For the purpose of this grouping (*i*) severe oedema in association with extra-vesical pressure in the bladder base and/or (*ii*) bullous oedema of the trigone, associated with impairment of mobility of the underlying tissues, were considered to be presumptive evidence of carcinomatous invasion. This impairment of mobility was assessed with the cystoscope in the bladder exploring against counter-pressure exerted by a finger in the anterior vaginal fornix.

Where doubt existed, the case was classified under group B.

Desquamation of the mucosa or actual malignant invasion by tumour tissue, or finally, the presence of a malignant fistula, were classed under group C.

RESULTS

One hundred and fifty patients with carcinoma of the cervix had cystoscopies performed before any form of treatment.

The cystoscopic findings were graded into the 4 groups described, and are recorded in Table I.

TABLE I. CYSTOSCOPIC FINDINGS IN 150 PATIENTS WITH CARCINOMA OF THE CERVIX

	Group O	*Group A*	*Group B*	*Group C*	*Total*
Number of patients	27	42	19	62	150
Percentage	18	28	12·7	41·3	100

A comparison between the clinical staging of the extent of the growths recorded before cystoscopy and the revised diagnoses after cystoscopy are recorded in Table II.

TABLE II. STAGING OF CASES BEFORE AND AFTER CYSTOSCOPY

	Stage I	*Stage II*	*Stage III*	*Stage IV*
Before cystoscopy ..	6	38	68	38
After cystoscopy ..	6	34	44	66
Error in diagnosis ..	0	4	24	0
Percentage error ..	0	10·5	35·3	0

Only 4 of the 66 stage IV carcinomas (6·1%) had no definite evidence of bladder involvement on cystoscopy.

Vesico-vaginal Fistulae

There were 22 vesico-vaginal fistulae in the series of 150 cases, an incidence of 14·7%. Of these, 16 had developed before admission or treatment, and 6 had received some form of therapy. The findings are summarized in Table III.

TABLE III. VESICO-VAGINAL FISTULA—22 CASES (14·7% OF TOTAL)

Mode of treatment	*No.*
Fistulae present before treatment:	
Palliative irradiation only	3
Deviation of urinary stream followed by radiotherapy	2
Deviation of urinary stream only	1
Beyond any form of treatment	10
Total	16
Fistula present after treatment:	
Radiotherapy alone	3
Radiotherapy followed by Wertheim hysterectomy ..	2
Wertheim hysterectomy only	1
Total	6

In the 6 cases in which a vesico-vaginal fistula developed after treatment, this was shown at necropsy to be due to a persistence of the growth, and in no case could radiotherapy be shown to be responsible for the fistula.

All patients with a vesico-vaginal fistula were dead within a year of developing this complication except for 2 treated by deviation of the urinary stream (uretero-colic anastomosis), followed by radiotherapy. One patient was last heard of 2 years after completion of treatment and 1 was apparently well 6 months after treatment, after which contact with her was lost.

Twenty-nine of the 62 patients (48·4%) in group C (stage IV cervical cancer with definite bladder involvement) had a full course of radium and deep-X-ray therapy without a single case of radio-necrosis of the bladder being recorded.

Type of Growth and Bladder Involvement

In the 150 cases, there were 100 in which the growth was described as endophytic or ulcerative in type, and 50 in which the growth was exophytic. Of the 62 cases in group C, there were 13 with exophytic growths. This gives an incidence of exophytic growths of 33% in the whole series but only 20·9% in group C.

TABLE IV. INVOLVEMENT OF BLADDER WALL ACCORDING TO TYPE OF TUMOUR

Type of tumour	*Bladder wall*		*Total*
	Involved	*Not involved*	
Exophytic ..	13 (26%)	37	50 (100%)
Endophytic ..	49 (49%)	51	100 (100%)
Total ..	62	88	

These findings have been recorded in Table IV.

On chi-square analysis, P is less than ·02, thus the frequency of bladder involvement was significantly higher with endophytic growths.

DISCUSSION

In this series the cystoscopic findings were abnormal in 82%. This emphasizes the importance of a full cystoscopic examination in every case of carcinoma of the cervix. We agree with the statement of Graves *et al.*[9] that 'cystoscopic examination may be just as important as pelvic and pathological examination'.

Its importance in diagnosis is shown in this series where 10·5% of stage II, and 35·3% of stage III carcinomas were placed in the wrong stage before cystoscopy, and it shows how local spread may be anterior towards the bladder before extensive parametrial involvement has occurred. On the other hand, extensive infiltration may occur without obvious bladder involvement — 6·1% of the stage IV carcinomas did not have definite bladder involvement on cystoscopy.

The importance of cystoscopy is appreciated all the more in view of the unreliability of other urological methods of investigation. Frequently, bladder involvement is asymptomatic and both examination of the urine and pyelography may reveal no significant abnormality.

Bladder biopsy was performed in a small number of these patients. The difficulty was to obtain an adequate specimen where there was no frank ulceration of the mucosa, and we were awaiting the arrival of a suitable type of biopsy forceps. A further method which is at present undergoing trial in this unit is the cytological examination of the centrifuged urinary deposit.

Thus, the diagnosis of bladder-wall involvement on cystoscopy is essentially a matter of experience in which correlation of the cystoscopic findings with the operative findings, the subsequent progress of the disease, and the

necropsy findings can best be made by the gynaecologist in charge of the case.

Our follow-up has not been long enough to make any firm statements regarding prognosis, but our initial impressions agree with those of Dearing,[1] Todd,[2] Graves *et al.*[9] and others who have all shown the grave prognosis of abnormal cystoscopic findings in association with cervical cancer. For instance, Dearing[1] found that 51% of patients with abnormal cystoscopic findings and a normal intravenous pyelogram had died within the first year.

The high percentage (14·7%) of vesico-vaginal fistulae found upon initial examination of our patients reflects the late stage at which our African patients seek treatment. By comparison, Graves *et al.*[9] found a 12·9% fistula rate in 425 cases, and Howes and Strauss[16] a 4% fistula rate, whereas Brack *et al.*[17] and Kottmeier[18] found a 5·4% and a 0·25% fistula rate, respectively, following irradiation.

Our results show that the complications of vesical involvement and vesical necrosis are more common with endophytic as opposed to exophytic cervical growths.

Most authorities agree with Strachan[3] and Todd[2] that, though radium necrosis does occur, persistent or recurrent carcinoma causes the majority of fistulae. This would appear to have been borne out by our figures, which also indicate that fistulae are more common among untreated as opposed to treated cases. From experience, even palliative radiotherapy offers the patient some measure of immunity from, or defers the development of, vesical fistula in the normal course of cervical cancer.

Differentiation of malignant from radiation fistulae is often difficult and may even be impossible without awaiting developments with the passage of time. True, radiation fistulae tend to occur in the mid-line just above the trigone, as stated by Graves *et al.*[9] and Dean,[11] whereas malignant fistula nearly always originates in the trigone, associated with more induration of the bladder base. The universally accepted method of distinguishing these fistulae by bladder biopsy is not infrequently misleading, in our experience.

The most effective method of palliation of our fistulae was diversion of the urinary stream followed by irradiation. Schewe and Sala[18] suggest that in this type of case 'the opportunity to render treatment is dictated by the status of the urinary tract rather than the status of the neoplasm'. They report 2 cases of skin ureterostomies with encouraging results.

Uretero-colic anastomosis in the presence of a damaged renal tract is a hazardous procedure and carries with it an appreciable mortality (1 of the 3 patients on which this operation was performed died shortly afterwards from a suppurative pyelonephritis), but the majority of our African patients refuse ileal bladders or skin ureterostomies, leaving only this alternative.

More recently, however, we have met with a greater measure of success with deviation of the urinary stream into ileal bladders or by performing skin ureterostomies, especially upon selected late cases.

CONCLUSION AND SUMMARY

1. Urethro-cystoscopy is of the utmost importance in the assessment, selection for treatment, and prognosis of all patients with cervical cancer, and this investigation is best done by a competent gynaecologist in charge of the case.

2. Endophytic growths are more likely to cause early bladder involvement than exophytic growths, and radium treatment to these is more likely to be followed by a fistula.

3. On the other hand, vesico-vaginal fistulae are seldom the result of radiation; therefore this form of treatment is not contra-indicated by bladder involvement. Indeed, radio-therapy to carcinomatous extension from cervical cancer offers some measure of immunity from subsequent fistula formation — even if radiation is merely palliative.

4. In cases of malignant vesico-vaginal fistulae or severe urinary-tract involvement, diversion of the urinary stream by uretero-colic anastomosis, skin ureterostomy or ileal conduit, followed by a full course of irradiation, may offer the best palliative advantages in those cases which are not ideally suited to anterior exenteration.

We wish to thank Dr. S. Disler, Superintendent of King Edward VIII Hospital, Durban, for access to the case histories.

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THE INTERPRETATION OF BLOOD-ALCOHOL IN TERMS OF TOTS TAKEN

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There are still many who do not grasp the meaning of expressions which denote the concentration of alcohol in human blood. Courts of law and lawyers are repeatedly seeking the interpretation of a phrase such as 'per cent, blood-alcohol, weight per volume', which is contained in all affidavits on the chemical analysis of blood taken from potentially drunken persons.

The interpretation of this phrase is often given as the smallest number of 'tots' or 'pints of beer' which could have been taken by the accused. This figure is only an approximation since it does not take unabsorbed alcohol into account. Neither does it account for alcohol already eliminated and due to its wide margin of error it is of limited value only. Nevertheless, it is a figure which conveys a definite meaning,

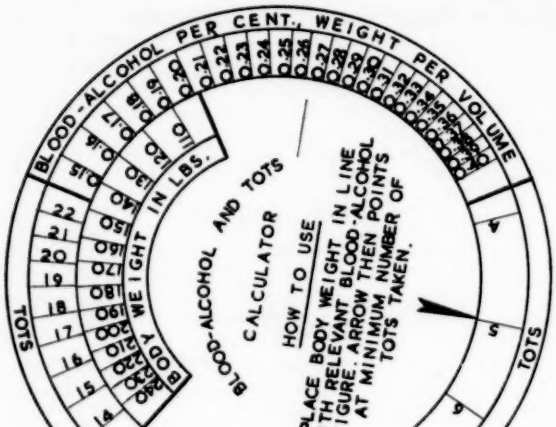

Fig. 1.

particularly to those who are not familiar with the abracadabra of scientific nomenclature. Usually the witness who provides the above explanation will have to carry out a calculation[1,3] or refer to a nomogram[4] or a table.[5,6]

The 'Blood-Alcohol and Tots Calculator', shown in Fig. 1, eliminates the above calculation. It furnishes the required answer at the touch of a finger. Its scales are based on those of the 'Verdix Calculator'.[4] Its indicating arrow is set so that 'r'=0·67. ('r' is the ratio of the concentration of alcohol in the whole blood to that in the body.[7] Clumsily, but broadly correctly, one might also state that it is the ratio between the weight of the soft tissues and that of the body.) In a calculator of a larger size it would of course be possible to sub-divide the 'tots' scale into millilitres or grams alcohol, thereby providing fractional readings between individual tots.

In Fig. I a body weight of 130 lb. has been set in line with 0·16% blood-alcohol, w/v. The arrow points at 5 tots, i.e. 75 ml. alcohol. (1 tot contains approx. 15 ml. alcohol.) The accuracy of this figure can now be checked by various equations of which two are being used:

1. A′ ml. = body weight (lb.) × blood-alcohol %, w/v × 3·6[1,3] where A′ ml. = the volume of alcohol absorbed by the body tissues.
   Thus A′ = 130×0·16×3·6 ml. alcohol
   = 74·28 ml. alcohol.

2. $A = p \times c \times r$
   where A = G. of alcohol absorbed by the body tissues (1 ml. alcohol weighs 0·8 G.);
   p = body weight in Kg. (1 Kg. = 2·204 lb.);
   c = mg. alcohol per G. of blood, i.e. 0·16% blood-alcohol, w/v is 0·16 G. alcohol per 100 ml. blood or 160 mg. alcohol per 100 × 1·056 G. blood (1 ml. blood has an average weight of 1·056 G.);
   r = 0·67.

   Hence $A = \frac{130}{2 \cdot 204} \times \frac{160}{105 \cdot 6} \times 0 \cdot 67$ G. alcohol

   or $A = \frac{130}{2 \cdot 204} \times \frac{160}{105 \cdot 6} \times \frac{0 \cdot 67}{0 \cdot 8}$ ml. alcohol
   = 74·84 ml. alcohol.

The following information will be found valuable when using this calculator:

	% *Alcohol by volume*	*Measure*	*ml. Alcohol per measure*
Spirits (whisky, brandy, gin)	43	Tot (35·5 ml.)	15
Beer	3·5	Reputed pint (378 ml.)	13
Stout	5		19
Wine (average) ..	14	Bottle (680 ml.)	95

A 'Blood-Alcohol and Tots Calculator' may be obtained, free of charge, from the author, Private Bag 6004, Port Elizabeth.

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THE SOUTH AFRICAN MEDICAL CONGRESS, 24 - 30 SEPTEMBER 1961, CAPE TOWN

HOTEL ACCOMMODATION

The Forty-third Medical Congress of the Medical Association of South Africa will be held in *Cape Town* from 24 to 30 September 1961. Information regarding the Congress is published at regular intervals in the *Journal*. Although it is still relatively early, inembers who intend coming to Congress are requested to send in their Intention Forms as soon as possible.

Prospective visitors to the Congress are also requested to bear in mind that *hotel accommodatiou in Cape Town is somewhat limited* and that they should make the necessary reservations well in advance of Congress. The Travel Bureau of the South African Railways has been appointed the official agent in this connection. Members are requested to contact their local agents who have been extensively circularized in this respect. In the small platteland towns the nearest stationmaster will handle the matter.

Make your reservations now in order to avoid disappointment. In the event of any difficulty, please write to Dr. J. C. Coetzee, Convener, Accommodation Sub-Committee, 43rd South African Medical Congress, P.O. Box 643, Cape Town.

EDITORIAL : VAN DIE REDAKSIE

DRUG-INDUCED ANOREXIA

In recent years the necessity to keep the weight down has been stressed a great deal, but in practice the emphasis on the importance of restricting the dietary intake has met with scant success. People find it difficult to eat less, much as they may desire to do so. As an easy way out, drugs have been introduced which are alleged to reduce the appetite, and quite a number of these are now on the market. There is very little evidence about the efficacy of some of them, and for this reason they should not be used. Nevertheless, so great is the demand for this type of agent that anorexiants are widely used by lay people.

There is no evidence that these drugs have a specific action on the appetite-controlling mechanism in the central nervous system and, as with all chemical substances introduced into the body, the potentiality to do harm must always be borne in mind. What is urgently needed for the treatment of obesity is more knowledge of the reasons why the obese continue to eat without reference to satiation. In over 90 per cent of cases there is a psychogenic basis for this condition, and something positive has to be done about this. There is psychological resistance to measures which decrease food intake. In the face of such compulsive desire to eat (overeat), the anorexiant drugs are ineffective unless food intake is controlled as well. The best and most lasting results have been obtained by psychotherapy and not from the use of drugs.

Most studies on these drugs have not been properly controlled. The use of these drugs may be associated with loss of weight, but it is a common experience that a large proportion of obese subjects tend to lose weight with any new regimen or even from association with a new physician.

The amphetamine-like drugs have been widely used as anorexiants. In the same group as amphetamine ('benzedrine') there are dexamphetamine ('dexedrine'), methylamphetamine ('methedrine'), phenylpropanolamine ('propadrine'), phenmetrazine ('preludin'), diethylpropion ('tenuate', 'tepanil') and others, known by these and other trade names. They belong to the same pharmacological group despite claims made to the contrary by certain manufacturers. In varying degrees they all stimulate the central nervous system, causing wakefulness, increased mental and physical activity, and even excitement and agitation.

In general they are not dangerous, and relatively few cases of acute poisoning have been reported. A few deaths have occurred. The chief complication is dependence. Tolerance may develop, and this makes them unsuitable for prolonged use. The sympathomimetic actions may produce cardiovascular effects; they vary in different patients and are revealed after individual trial with the drug. Amphetamine itself is rarely used today. Dexamphetamine stimulates the brain, but its cardiovascular action is feebler. Methylamphetamine is similar. Phenmetrazine has a cephalotropic action and little effect on the cardiovascular system; large doses produce disturbances of mood, apprehension, agitation, delusions, and hallucinations. It can produce addiction. Diethylpropion ('tenuate'), which has recently come on the market, is probably not superior to dexamphetamine; no significant publications dealing with this drug have yet appeared. It is difficult at this stage to indicate which of the drugs in the amphetamine series is best, although dexamphetamine is probably the most desirable of them all.[1]

Thyroid hormone is indicated only when deficiency of thyroid is present in the obese subject. In some patients the use of central nervous sedatives may assist in the weight-loss regimen, e.g. in the 'night-eating' syndrome where the response to stress consists of insomnia, nocturnal pangs of hunger, and morning anorexia. The use of methylcellulose to provide bulk and satiety has not proved effective. The obese person is not easily satisfied and wants genuine food to eat.

In obese subjects it is important to deal with basic psychological troubles. If anorexiant drugs are to be used, their limitations must be appreciated. They should not be administered for a prolonged period, but as a temporary device to enable the patient to accomplish some loss of weight. What needs to be discovered is a drug which depresses the appetite-control mechanism with considerable specificity. No such drug is as yet available. For most patients the best approach to the problem is some form of psychotherapy.

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BANDOPNAMEDIENSTE

Op 25 Maart 1959 het dr. F. A. van Heerden, van Bergville, Natal, die volgende geskryf in 'n brief aan die Redakteur: ‚Dit wil voorkom of dit 'n gevestigde gebruik in die V.S.A. is om interessante mediese lesings op bandopnames op te neem en om die opnames dan teen 'n geringe vergoeding vir lede van die mediese professie beskikbaar te stel. Hierdie prosedure kan van baie groot waarde wees vir diegene van ons wat in die platteland woon en wat nie die voorreg het om, soos ons kollegas in die stede, lesings by te woon deur sommige van ons beste onderwysers of ook deur bekende besoekers uit ander lande nie. Miskien sou u moontlike maniere kon bedink om so 'n diens vir ons in hierdie land in te stel'.

Sedert die publikasie van dr. van Heerden se brief het twee interessante ontwikkelinge plaasgevind. Eerstens is die Fakulteit Kaap de Goede Hoop van die Kollege van Algemene Praktisyns gestig. Onder die baie belangrike dienste wat hierdie fakulteit lewer, is daar nou ook 'n bandopnamediens vir lede van die Kollege. Die firma Smith, Kline en French Laboratories was so vriendelik om die Kollege te ondersteun ten einde hierdie diens moontlik te maak.

Tweedens het die firma Squibb Laboratories 'n unieke diens ingestel vir lede van die mediese professie in Suid-Afrika deur bandopnames met besprekings van teenswoordige mediese literatuur en wetenskaplike lesings vry beskikbaar te

stel vir persone of groepe om na te luister. Hierdie opnames is gemaak deur die Audio-Digest Foundation, 'n vertakking van die Mediese Vereniging van Kalifornië. Die Foundation word nie op 'n winsbasis gedryf nie. Squibb Laboratories het later hul hele bandopname-biblioteek aan die Mediese Vereniging geskenk, op die veronderstelling dat die Vereniging gewillig sou wees om die diens aan geneeshere voort te sit. Die Mediese Vereniging is nou vaste intekenaars op die bandopnamediens van die Audio-Digest Foundation.

Hierdie opnames dek 'n wye veld van belangstelling vir alle lede van die mediese professie sowel as vir mediese studente, en sluit, onder andere, opnames in deur besoekende sprekers, en deur vooraanstaande mediese en chirurgiese persoonlikhede in die V.S.A. Die vyf-duim bande maak dit moontlik om ongeveer 'n uur lank te luister na 'n baie interessante en genotvolle aantal artikels uit die wêreldliteratuur, wat op 'n deskundige manier opgesom is. Die artikels word gelees met die duidelikheid en helderklinkendheid van 'n deskundige leser, en hulle bevat ook opsommings van belangrike punte op verskillende gebiede.

Die bandopnames word gereeld weekliks ontvang, en nuwe bande sowel as oues wat al reeds vrygestel is, kan sonder vergoeding by die Mediese Vereniging geleen word. Die Vereniging hoop om in die toekoms ook in staat te wees om sy eie opnames te maak van lesings en besprekings deur deskundiges in hierdie land. Verdere informasie oor die onderwerpe en reekse wat beskikbaar is, sowel as enige ander informasie in hierdie verband, kan verkry word van die Sakebestuurder, Mediese Vereniging, Posbus 643, Kaapstad.

ALLERGIC CONTACT DERMATITIS DUE TO NEOMYCIN

CROSS-SENSITIVITY WITH OTHER ANTIBIOTICS; AND POSITIVE PATCH TESTS WITH THE ISOMERIC COMPOUNDS NEOMYCIN B AND NEOMYCIN C AND WITH NEAMINE

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Formerly it was thought that locally applied neomycin had a low sensitizing index. Judging from the increasing number of publications of contact dermatitis due to neomycin, it seems that its sensitizing index is much higher than was believed. As early as 1952 contact dermatitis due to neomycin was reported by Kile *et al.*[1] in 1 out of 722 patients treated with neomycin. In the same year Baer and Ludwig[2] described another case, in a middle-aged housewife, with dermatitis of the ears. She had been treated with eardrops containing neomycin, 5 mg. per ml. of sterile distilled water; 5 months after the inception of this treatment there was a sudden unexplained recurrence of signs and symptoms. A patch test with a neomycin solution, 5 mg. per ml., was positive, while a patch test with a bacitracin solution, 500 units per ml., was negative.

Epstein[3] reported 10 cases of contact dermatitis due to neomycin. In an addendum he mentioned that, at the time his paper was going to press (September 1956), the number of cases of contact dermatitis had risen to 25, including some caused by eardrops and eyedrops containing neomycin. Patch tests with the ointments as well as with a 0·5% solution of neomycin were only occasionally positive. Proof of allergic sensitivity to neomycin was demonstrated by intradermal tests with 0·05 ml. of 1 in a 1,000 or 1 in a 100 solution of neomycin, which produced papular reactions in 48 hours.

Epstein pointed out that neomycin contact dermatitis is often not recognized because it resembles an apparent aggravation of the pre-existing dermatitis, which might show improvement after the use of ointments containing neomycin *and* hydrocortisone. Patch tests with ointments are often negative at the same time.

In a later publication, Epstein[4] reported on 40 cases of contact dermatitis due to neomycin, of which only 11 showed positive patch tests to the drug, while intradermal tests were uniformly positive. With McCormick[5] he described 4 cases of conjunctivitis caused by eyedrops or ointments containing neomycin.

Pirilä and Wallenius,[6] in Finland, reported 28 cases of contact dermatitis from neomycin and bacitracin. Eighteen of their neomycin-sensitive patients reacted positively to patch tests with bacitracin (in concentrations up to 3%) while, of 25 cases in which patch tests with 3% neomycin were performed, all except 1 were strongly positive.

Sidi *et al.*[7] reported 8 cases of neomycin contact dermatitis which also gave positive patch tests to streptomycin (concentrations not mentioned). They state that in a number of cases patch testing was insufficient to elicit a reaction; however, light scarification before the testing regularly yielded positive tests in sensitized patients.

Calnan and Sarkany,[8] who described 14 cases of contact dermatitis from neomycin, found that negative patch tests were frequent, but intradermal tests with a 1% solution of neomycin were always positive in their patients. Cross-sensitivity to 1% streptomycin was found in 2 patients, but no allergic neomycin sensitivity was encountered in 7 other streptomycin-sensitive patients. Neither was there evidence of an associated hypersensitivity reaction to bacitracin and framycetin.

Reynolds *et al.*[9] observed a total of 28 patients and described illustrative cases. Patch tests with 0·1% and 1% isotonic solutions of neomycin sulphate were positive in 24 of the 28 patients.

Kooij[10] reported a case of contact dermatitis due to both hydrocortisone *and* neomycin. Positive patch tests were obtained with a 1% and 6% solution of hydrocortisone sodium succinate in sterile water, with a 0·5% prednisolone cream, with 3% neomycin in paraffinum molle and with 6% 'chloromycetin' and 6% 'achromycin' in paraffinum molle.

In a later article Pirilä and Rouhunkosky[11] collected 184 cases of hypersensitivity to bacitracin and/or neomycin with positive epicutaneous tests, probably due to the frequent use of these drugs. They state that in Finland in the last few years 2 million packages of preparations containing the above antibiotics were sold. A total of 101 patients were tested with both neomycin and bacitracin.

All showed a positive reaction to neomycin (10% solution) and in only 5 cases tests with a 5% bacitracin solution were negative. Out of 79 patients tested with a mixture of streptomycin and dihydrostreptomycin only 2 reacted positively. They used as high a concentration as 50%.

They also describe a case in which there was a flare-up of dermatitis after using throat tablets and after oral administration of tablets containing these antibiotics. It seems worth while to give full particulars of this instructive case.

'The patient, who was hypersensitive to bacitracin, had pharyngitis and he inadvertently treated it with tyrobacin throat tablets ("star") containing tyrothricin and bacitracin. As a result, the oral and lingual mucosa became intensely inflamed and swelling of the lips and rhagades at the angles of the mouth also developed. The patient stopped using the tablets and was cured in 5 - 6 days. He decided to be more careful in the future in avoiding exposure to neomycin and bacitracin. In spite of this he experienced another unpleasant surprise, which occurred after little more than a week. He had toothache and the dentist diagnosed gangrene of the pulp. The pulp cavity and root canal were opened up to the apex and cleaned. The cavity was then filled with neotrasin paste. Neotrasin "dentale" contains neomycin and bacitracin. Powder containing both these drugs is now almost routinely used for root-canal treatment in Finland. The patient, naturally, could not know that he had again been exposed to these antibiotics.

'The toothache increased in severity, and after a lapse of one-and-a-half hours the palms of the patient's hands began to itch. Erythema and swelling of the face soon appeared, and itching in the popliteal folds and on the stump of an amputated leg. The oral mucosa also became inflamed. The dermatitis involved the same area as that following the local application of neomycin and bacitracin preparations. Four hours later the root canal was re-opened and the neotrasin removed. Nevertheless, aggravation of the eczema with oozing occurred during the first 24 hours. Thereafter, under cortisone and antihistamine treatment, the eczema cleared up in one week. Roentgenograms showed that a guttapercha filling, later inserted into the tooth, penetrated through the root canal into the periapical focus. In the same way neotrasin had reached this focus, whence the allergen was probably carried to the skin by the blood stream, thus explaining the flare-up of his eczema as due to the use of neotrasin in the root canal.

'Neomycin was later tried internally on the same patient. As smaller doses did not produce a clear reaction he was given 2 tablets (165 mg. each) 4 times during one day, making a total of 1·3 G. (daily doses, 5 - 10 times as high, have been used for pre-operative medication). About 6 hours after the patient had taken the first 2 tablets he had loose stools but no other symptoms. After 24 hours the skin in the popliteal folds began to itch and after 2 days a follicular eczema developed at the site as well as on the thighs, in addition to oedema of the face. As there was no improvement on the third day, cortisone treatment was started.'

PRESENT STUDY

In a few patients with a dermatitis in whom the probability of neomycin being the causal factor was suspected, patch tests with several brands of neomycin ointment were carried out. The results were negative. By using higher concentrations, as suggested by Calnan and Sarkany,[8] positive results were obtained.

MATERIAL AND METHODS

Patch tests were performed on the backs of the patients, and the results were read after 48 hours and again after 96 hours, and often also later.

In the beginning we used, empirically, 3% and later 6% neomycin in paraffinum molle for patch testing. These concentrations were used for patch testing with 'aureomycin', chloromycetin, achromycin, and bacitracin, all in paraffinum molle. For patch tests with 'soframycin' (containing framycetin) 1·5% soframycin ointment (Roussel) in a water-soluble base was used.

Streptomycin (sulphate) and dimycin were applied in an aqueous solution of 25%. Dimycin contains equal parts of streptomycin sulphate and dihydrostreptomycin.

In some cases the isomeric compounds neomycin B and neomycin C, and also neamine, in a concentration of 6% in paraffinum molle, were tested.

The 'neomycin complex' contains the isomeric compounds neomycin B and neomycin C and a third entity, originally called neomycin A, now designated as neamine, which arises from the hydrolytic cleavage of either neomycin B or C.[12]

Other patch tests are mentioned in the case reports (see addendum).

In this study most of the patients tested were those suspected of being hypersensitive to neomycin. About 60 controls, White and non-White, were also tested.

RESULTS

Patch tests were carried out in 7 patients with a contact dermatitis due to neomycin (cases 1 - 7) and in 1 patient with allergic sensitivity to streptomycin (case 8) — see case reports.

Table I shows the main results in these patients of the various patch tests with neomycin, chloromycetin, achromycin, aureomycin, bacitracin, streptomycin, dimycin, the isomeric compounds neomycin B and neomycin C, and neamine.

Each of the 7 patients with neomycin contact dermatitis showed a positive patch test with 3% and 6% neomycin in paraffinum molle. The persistence of the reactions to the patch tests with neomycin for several weeks, and also to patch tests with other antibiotics (see case 7, Fig. 2), has already been noticed by others.

Cross-sensitivity occurred to all the antibiotics tested with the exception of streptomycin, which, however, was found positive by others in cases of contact dermatitis due to neomycin. Case 8, with allergic sensitivity to streptomycin, did not show positive patch tests to the other antibiotics. As is obvious, each case has its own pattern of reaction.

The patch tests with the isomeric compounds, neomycin B and neomycin C, and with neamine, were positive in the cases tested, the strongest reactions being obtained with neamine.

During the course of the investigation the impression was gained that the activity of the patch-test material was diminishing, because in 2 patients (cases 6 and 7) known to be hypersensitive to neomycin, patch tests with 6% neomycin, 6% chloromycetin, 6% achromycin, and 6% bacitracin in paraffinum molle were negative.

The material used in both these patients had been prepared at least 6 months earlier and had not been kept in the ice chest. However, with freshly-prepared material positive results were obtained in both cases.

The 1·5% soframycin ointment used for patch testing still gave positive, although weaker, reactions. This proprietary preparation in a water-miscible base was

TABLE I. RESULTS OF PATCH TESTS IN PATIENTS WITH CONTACT DERMATITIS DUE TO NEOMYCIN (CASES 1 - 7) AND STREPTOMYCIN (CASE 8)

Cases	Patch tests																	
	3% Neomycin	6% Neomycin	3% Chloromycetin	6% Chloromycetin	3% Achromycin	6% Achromycin	3% Aureomycin	6% Aureomycin	3% Bacitracin	6% Bacitracin	1·5% Soframycin	25% Streptomycin	25% Dimycin	6% Neomycin B	6% Neomycin C	6% Neamine
1	++			±		±	+		+		+	−		++	++	
2*	+++		−	++	−	+		−				−				
3	+	+		−		−		−	−		+	−		++	++	+++
4		+		−		−		−		+	±	−				
5		+		−		−		−		−	++	−**	−**	++	++	±**
6		++		−		−		−	−		−	−	−	++	++	+++
7		++		+		+		+		−	+	−	−	++	++	+++
8		−		−		−		−		−	−	++				

* Also hypersensitive to hydrocortisone.
** While under oral treatment with steroids (medrol).

manufactured in November 1957; the date of expiry was November 1959. It was used to test various patients between February 1959 and September 1960.

The influence of steroid treatment on the results of the patch tests was noted in case 5. Formerly positive patch tests with 6% neomycin in paraffinum molle became negative after patients had been under oral 'medrol' treatment for several weeks. Also, the previously strong reaction to the waterproof 'elastoplast', used for patch testing, was much weaker.

DISCUSSION

According to the literature, which bears out our own experience, there has been an increase in the number of cases of contact dermatitis due to neomycin. This is partly due to the enormous increase in the use of neomycin preparations for local application and partly to a better recognition of neomycin as a cause of allergic sensitivity.

At first it was not known that the clinical features of neomycin dermatitis can differ from the usual type of allergic contact dermatitis. For instance, instead of an acute, vesicular, oozing process at the site of contact, the reaction to neomycin can be of the dry, desquamative type. I observed it in case 4 in this series.

The improvement often observed when changing from a neomycin ointment to an ointment containing both neomycin and hydrocortisone has also contributed to the failure to recognize neomycin contact dermatitis. Most confusing is the fact that patch tests done with the neomycin ointments are actually often negative, even in cases of contact dermatitis due to this antibiotic. By increasing the concentration of neomycin in the ointments used for patch testing, however, and also by means of intradermal tests with solutions of neomycin, more positive results can be obtained. I prefer patch tests to intradermal tests because intradermal injections are not without danger in very sensitive patients.

With a concentration of 6% neomycin in paraffinum molle in the above 7 cases of contact dermatitis from neomycin, positive results were obtained, while these concentrations did not evoke positive reactions in about 60 controls. It is not impossible that with higher concentrations, more positive cases would have been found. Patch testing with antibiotics is not used as a routine in the Groote Schuur Hospital Skin Department, but only in suspected cases of hypersensitivity. This method was also used in a number of controls for the determination of the correct concentration for patch testing. Recently, Pirilä and Rouhunkosky,[11] used 50% neomycin ointments, which gave positive reactions in some cases that had not reacted to a 10% solution of neomycin. In a control series of 150 persons, no positive reactions were observed.

The persistence for several weeks of the reactions to the patch tests with neomycin is very striking, and it should be remembered that patients might complain about it. This persistence of the neomycin patch-test reaction is on a par with the often long duration of contact dermatitis itself due to the same cause.

Of practical importance is the finding that the antibiotic test material in paraffinum molle, kept out of the ice chest, decreased considerably in activity in about 6 months, resulting in negative patch tests in previously positive reactors. In consequence it has been decided to preserve all the patch-testing preparations in the ice chest and to renew them from time to time. It is wise, also, to bear in mind that neomycin-sensitive patients who are being treated systematically with steroids might conceivably show negative patch-test reactions to this antibiotic.

CROSS-SENSITIZATION

Seeing that many antibiotics may contain similar chemical compounds in their structural formulae, the possibility of cross-sensitization was investigated. By means of patch

tests, chloromycetin, achromycin, aureomycin, bacitracin, soframycin (framecytin) and streptomycin were investigated with this in view. Cross-sensitization is a phenomenon where allergic sensitization of human skin produced by a compound (the primary allergen) is associated with allergic eczematous sensitization to one or more compounds.[12] It occurs between immunochemically related substances or between two or more apparently unrelated substances which, by conversion in the human tissues, are broken down into products which are immunochemically related.

In the above investigation positive patch tests to chloromycetin, achromycin, aureomycin, bacitracin and soframycin were found in patients with a contact dermatitis due to neomycin. No positive patch tests were noted in this series with streptomycin, although cross-sensitivity between neomycin and streptomycin has been described.

Case 8, with allergic sensitivity to streptomycin in a high degree, did not show positive patch tests to any of the other antibiotics tested.

As is shown in Table I, every patient reacted characteristically, individually, and had his own pattern of reaction, as has been shown among others by Kooij and van Vloten[14] in cases of allergic sensitivity to sulphonamides.

The above results point to the possibility that in cases of allergic sensitivity to neomycin the use of other antibiotics, even systemically, might lead to reactions. One of the reasons for the choice of neomycin for topical use was that it was hardly ever used systemically and when used orally it was only slightly absorbed.

The above-mentioned illustrative case described by Pirilä and Rouhunkosky,[11] however, shows that even the oral administration of neomycin can cause a dermatitis in sensitive persons.

Several of the antibiotics, which this investigation showed to possess a cross-sensitivity with neomycin, are used systemically on a large scale. It might easily happen that, for this reason, the use of any one of them might have to be denied in cases where a life was at stake.

A warning against the indiscriminate use of neomycin is therefore justified. It should not be forgotten that most cases of impetigo and pyoderma can easily be cured with the old galenicals, such as sulphur, salicylic acid and other medicaments, without the aid of antibiotics.

ACTIVE CHEMICAL COMPOUND CAUSING SENSITIZATION

A beginning has been made in the search for the active chemical compound causing the allergic sensitization in the case of neomycin. As mentioned above, neomycin is not a single substance but it is a 'neomycin complex' containing the isomeric compounds neomycin B and neomycin C and a third entity called neamine. Neamine arises from the hydrolytic cleavage of either neomycin B or C.

It is very difficult to obtain these compounds in the pure state. Through the courtesy of S. B. Pennick and Company, New York, we recently obtained pure neomycin B, neomycin C and neamine. Positive patch tests were obtained in cases of contact dermatitis due to neomycin, not only with the isomers B and C, but also with neamine (case 3, Fig. 1). The reactions with the latter were severe.

The immediate interpretation of these results is difficult, since the elucidation of the exact chemical structure has not progressed to the point where an unequivocal formula can be drawn. These investigations for the active compound causing allergic sensitivity to neomycin are only in the first stage. They will be continued and the results will be reported in a separate article.

SUMMARY

1. Seven cases of allergic contact dermatitis due to neomycin, and 1 case due to streptomycin are reported.

2. Patch tests with the usual neomycin ointments were often negative; by increasing the concentration to 6% in paraffinum molle, positive reactions were obtained in all 7 cases.

3. In the 7 patients with allergic contact dermatitis due to neomycin, cross-sensitivity has been observed with chloromycetin, achromycin, aureomycin, bacitracin and soframycin, but not with streptomycin. The patient hypersensitive to streptomycin did not show cross-sensitivity to the other antibiotics. The implications of these findings are discussed.

4. Diminishing activity of the test material, when not preserved in the ice chest, was found.

5. Previously positive patch-test reactions became negative while the patient was under oral treatment with steroids (medrol).

6. A warning against the indiscriminate local use of neomycin is given, since this might make it difficult, because of cross-sensitivity, to use other antibiotics systemically in circumstances where they might be life-saving.

ADDENDUM—CASE REPORTS

Case 1

A White shopkeeper, aged 23 years.

Recurrent weeping eczema, chiefly of legs and hands since 1953. Treated, among other preparations, with ointments containing aureomycin, erythromycin and neomycin, and with neocortef and 'florinef' preparations, the florinef containing graneodin. In February 1959, following treatment with neomycin and 'neocortef' ointment, the skin condition worsened and the patient was admitted to a dermatological ward.

Date	*Patch tests*	*Results*
February 1959	Neomycin ointment, 0·5%	−
	3% neomycin in paraffin. molle ..	++
	Neocortef ointment, 1%	+
	Terramycin ointment	−
	Ilocytin ointment	−
	Soframycin ointment, 1·5%	+
	Chloromycetin, 1% in paraffin. m. ..	−
	Chloromycetin, 6% in paraffin. m. ..	±
	Achromycin, 1% in paraffin. m. ..	−
	Achromycin, 6% in paraffin. m. ..	±
	Bacitracin, 3% in paraffin. m. ..	+
	Aureomycin, 3% in paraffin. m. ..	+
	Sulfanilamide, 5% in paraffin. m. ..	−
	Anthisan cream	−
March 1960	Neomycin B, 6% in paraffin. m. ..	++
	Neomycin C, 6% in paraffin. m. ..	++
	Hydrocortisone succinate in water, 6%	−

Case 2

A garage hand, non-White, aged 19 years.

At the beginning of July 1958 he developed weeping eczema on his face and hands. He was treated, among other preparations, with 1% neomycin ointment on the skin round the eyes. The condition improved, but relapsed after 10 days and became worse than before. Neocortef ointment, 1%, was then applied, and this was again followed by an improvement. About 10 days later the condition worsened and a 1% hydrocortisone ointment was tried but the skin condition became even worse.

Date	Patch tests	Results
March 1959	Neomycin, 3%, in paraffin. m.	+++
	Neocortef ointment, 1%	++
	Chloromycetin, 3%, in paraffin. m. ..	−
	Chloromycetin, 6%, in paraffin. m. ..	++
	Achromycin, 3%, in paraffin. m. ..	−
	Achromycin, 6%, in paraffin. m. ..	+
	Aureomycin, 6%, in paraffin. m. ..	−
Nov. 1960	Neomycin, 6%, in paraffin. m.	+
	Hydrocortisone sodium, 6%	+

In addition, this patient was proved to be hypersensitive to hydrocortisone. Patch tests with 1% and 6% hydrocortisone sodium were positive, as was prednisolone, but not cortisone and triamcinolone.

For further particulars of this patient, reference may be made to an earlier article of mine.[10]

Case 3

A housewife, aged 31 years, had suffered from 'boils in the ears' from 1954. She was treated, among other preparations, with florinef and neocortef eardrops. She used necortef ointment

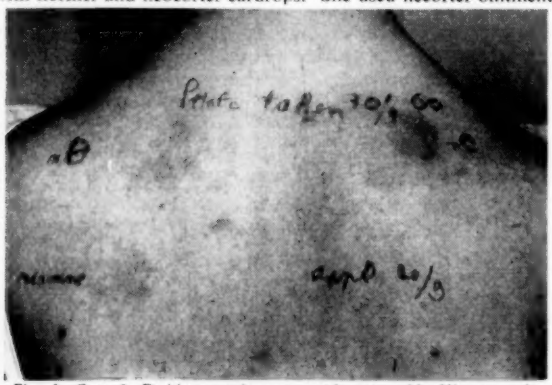

Fig. 1. Case 3. Positive reactions to patch tests with 6% neomycin B (n B), 6% neomycin C (n C), and 6% neamine, all in paraffinum molle. The photograph was taken 10 days after the application of the patch tests.

for more than a year, initially with satisfactory results. Later on, in June 1959, the condition worsened and spread to both eyelids. Fig. 1 is a photograph, taken on 30 September 1960, of the patch tests performed on 20 September.

Date	Patch tests	Results
June 1959	Neomycin, 3%, in paraffin. m. ..	+
	Neomycin, 6%, in paraffin. m. ..	+
	Chloromycetin, 6%, in paraffin. m.	−
	Achromycin, 6%, in paraffin. m.	−
	Aureomycin, 6%, in paraffin. m.	−
	Bacitracin, 3%, in paraffin. m. ..	−
	Soframycin ointment, 1½% ..	+
	Streptomycin, 25%, in water ..	−
	Hydrocortisone succinate in water, 6%	−
20 September 1960	Neomycin B, 6%, in paraffin. m.	++
	Neomycin C, 6%, in paraffin. m.	++
	Neamine, 6%, in paraffin. m. ..	+++

Case 4

A European policeman, aged 22 years.

He suffered from a generalized eczema from the beginning of 1959. He was treated with ointments containing various antibiotics, among others aureomycin, chloromycetin, and neomycin, and also with neocortef ointment. After temporary improvement the skin condition worsened.

Date	Patch tests	Results
September 1959	Neomycin, 6%, in paraffin. m. ..	+
	Chloromycetin, 6%, in paraffin. m.	−
	Achromycin, 6%, in paraffin. m. ..	−
	Aureomycin, 6%, in paraffin. m. ..	−
	Bacitracin, 6%, in paraffin. m. ..	+
	Soframycin ointment, 1·5% ..	±
	Streptomycin, 25%, in water ..	−
	Hydrocortisone succinate in water, 6%	−

Case 5

A Coloured female, a cook general, aged 46 years.

She was admitted to the dermatological ward in September 1959 with seborrhoeic dermatitis. Her skin complaints had started in 1953 and had worsened for the last 6 months. She had local treatment with various ointments containing aureomycin, chloromycetin and neomycin, and with neocortef ointment. The condition gradually became worse.

After withdrawal of the neocortef ointment and administration of 4 mg. medrol tablets, 6 - 2 daily for several weeks, the skin condition improved. She was discharged in December 1959. Because of a recurrence, probably due to neomycin, she was again admitted to a dermatological ward and again needed medrol orally.

Date	Patch tests	Results
September 1959	Neomycin, 6%, in paraffin. m. ..	+
	Chloromycetin, 6%, in paraffin. m.	−
	Achromycin, 6%, in paraffin. m. ..	−
	Bacitracin, 6%, in paraffin. m. ..	−
	Aureomycin, 6%, in paraffin. m. ..	−
	Soframycin ointment, 1·5% ..	++
	Hydrocortisone succinate in water, 6%	−
June 1960	Neomycin B, 6%, in paraffin. m. ..	++
	Neomycin C, 6%, in paraffin. m. ..	++

In September 1960, while under medrol treatment with 4 mg. twice daily for several weeks, a repeat of the patch tests with the following freshly-prepared substances gave uniformly negative results:

Patch tests	Results
Neomycin, 6%, in paraffin. m.	−
Chloromycetin, 6%, in paraffin. m.	−
Achromycin, 6%, in paraffin. m.	−
Aureomycin, 6%, in paraffin. m.	−
Bacitracin 6%, in paraffin. m.	−
Soframycin ointment, 1·5%	−

The patient, who formerly showed severe reactions to the waterproof elastoplast used for patch testing, reacted, under medrol treatment, only slightly to this material on this occasion. She was treated with medrol for several weeks, starting with 6 tablets a day and tapering down to 2 at the time of the patch tests.

On 20 September 1960, a recent patch test with 6% neamine in paraffin. m. was only slightly positive (±), becoming positive (+) after a week. Streptomycin, 25% in water, and dimycin, 25% in water, were negative.

Case 6

A European male, an auditor, aged 34 years.

From the end of 1957 he suffered from dermatitis of both hands. His hobby is angling, which he carries out under the strong South African sun at the seaside. This hobby was probably the cause of the dermatitis.

In November 1958 a neocortef ointment was prescribed, and he kept the skin condition under control with this ointment, without medical supervision, until April 1960. Then a severe dermatitis of both hands developed. The neocortef ointment was withdrawn and the dermatitis gradually, although slowly, improved.

Date	Patch tests	Results
June 1960	Neomycin B, 6%, in paraffin. m. ..	++
	Neomycin C, 6%, in paraffin. m. ..	++
July 1960	(Test material prepared in January 1960)	
	Neomycin, 6%, in paraffin. m. ..	−
	Chloromycetin, 6%, in paraffin. m.	−
	Achromycin, 6%, in paraffin. m. ..	−
	Aureomycin, 6%, in paraffin. m. ..	−
	Bacitracin, 6%, in paraffin. m. ..	−
	Soframycin ointment, 1·5% (from 1957)	−
August 1960	(Repeat with freshly-prepared test material)	
	Neomycin, 6%, in paraffin. m. ..	++
	Chloromycetin, 6%, in paraffin. m.	−
	Achromycin, 6%, in paraffin. m. ..	−
	Aureomycin, 6%, in paraffin. m. ..	−
	Bacitracin, 6%, in paraffin. m. ..	−
	'Nivemycin' ointment (Boots) containing 0·5% neomycin sulphate in a bland, non-irritant anhydrous base	++

September 1960	Neamine, 6%, in paraffin. m. ..	+++
	Streptomycin, 25%, in water ..	−
	Dimycin, 25%, in water	−
	Hydrocortisone succinate in water, 6%	−

Case 7

A housewife, aged 61 years.

She had chronic otitis externa for several years. She was treated in 1957 with 2·5% neocortef ointment for the ears and a neocortef solution for the eyes. For some time she was also treated with aureomycin ointment.

In July 1960 she came to the dermatological outpatient department with an acute dermatitis round the left eye after application of a neocortef ointment for blepharitis of that eye. After withdrawal of this ointment the dermatitis showed improvement.

Date	*Patch tests*	*Results*
18 July 1960	Neomycin B, 6%, in paraffin. m.	++
	Neomycin C, 6%, in paraffin. m.	++
25 July 1960	(Patch tests with material prepared in January 1960)	
	Neomycin, 6%, in paraffin. m. ..	−
	Chloromycetin, 6%, in paraffin. m.	−
	Achromycin, 6%, in paraffin, m.	−
	Aureomycin, 6%, in paraffin. m.	−
	Bacitracin, 6%, in paraffin. m. ..	−
	Soframycin ointment, 1·5% (from 1957)	+
30 August 1960	(Repeat of patch tests with freshly-prepared material)	
	Neomycin, 6%, in paraffin. m. ..	++
	Chloromycetin, 6%, in paraffin. m.	+
	Achromycin, 6%, in paraffin. m.	+
	Aureomycin, 6%, in paraffin. m.	+
	Bacitracin, 6%	−
20 September 1960	Neamine, 6%, in paraffin. m. ..	+++
23 September 1960	Streptomycin, 25%, in water ..	−
	Dimycin, 25%, in water	−
	Hydrocortisone succinate in water, 6%	−

Patch tests performed on 30 August 1960 were still positive on 23 September (Fig. 2).

Case 8

A female nurse, aged 20 years.

In November 1959 her left eye became itchy and swollen. At that time she was giving many injections of streptomycin. She also had a papular rash on her fingers. When she avoided contact with streptomycin the skin condition cleared. On repeated contact there was a recurrence.

Date	*Patch tests*	*Results*
November 1959	Streptomycin, 1/100	+
	Streptomycin, 1/1,000	+
	Streptomycin, 1/10,000	+
	Streptomycin, 1/100,000	−
	Streptomycin, 25%	++

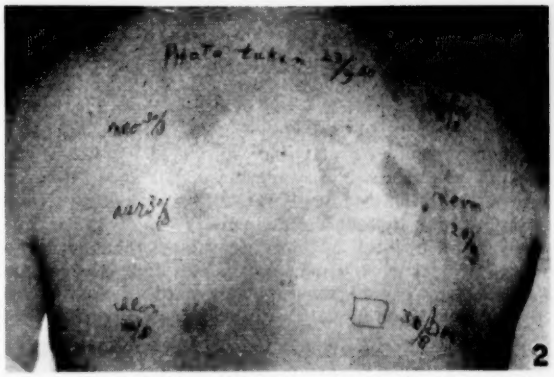

Fig. 2. Case 7. Positive reactions to patch tests with 6% neomycin, 6% aureomycin, 6% achromycin and 6% neamine, all in paraffinum molle. The reaction to 6% bacitracin was negative. All the patch tests were carried out on 30 August 1960, except that with neamine, which was performed on 20 September. The photograph was taken on 23 September 1960

August 1960	(Patch tests with freshly-prepared material)	
	Neomycin, 6%, in paraffin. m. ..	−
	Chloromycetin in paraffin. m. ..	−
	Achromycin, 6%, in paraffin. m. ..	−
	Aureomycin, 6%, in paraffin. m. ..	−
	Bacitracin, 6%, in paraffin. m. .	−
	Soframycin ointment 1·5% (from 1957)	−

I am indebted to Mr. J. I. Aitken, Senior Pharmacist, Groote Schuur Hospital, and Mr. M. W. Clancy, for the preparation of the test material; to Mr. B. Todt, of the Department of Clinical Photography, for the photographs; and to the Dr. C. L. Herman Research Fund for financial aid.

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PRIMÊRE OVARIËLE SWANGERSKAP

VERSLAG VAN 'N GEVAL EN 'N KORT BESPREKING

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Primêre ovariële swangerskap is so 'n uiters seldsame toestand dat dit van belang is om elke geval te rapporteer.

Ovariële swangerskap vorm van 0·7 tot 1·07% van alle ektopiese swangerskappe. Die voorkoms van ektopiese swangerskappe is 1 in elke 250 swangerskappe. Die teoretiese voorkoms van primêre ovariële swangerskap is dus 1:25,000 swangerskappe.[4]

Om 'n swangerskap as primêr ovarieel te beskou, moet die vereistes wat in 1878 deur Spiegelberg[6] beskrywe is, nagekom word. Hierdie vereistes is as volg:

1. Die Buis van Fallopius met sy fimbria moet onaangetas wees en moet heeltemal los van die ovarium wees.

2. Die swangerskap-sak moet die normale posisie van die ovarium inneem.

3. Die swangerskap-sak moet aan die uterus verbind wees deur die utero-ovariële ligament.

4. Ovariële weefsel moet in die wand van die swangerskapsak teenwoordig wees.

Hierdie vereistes is van meer belang in gevalle van ver gevorderde ovariële swangerskappe aangesien dit in die vroeë tipe makliker is om vas te stel of die swangerskap net die ovarium aantas.[1]

Die pre-operatiewe diagnose word in 60% van gevalle gestel as 'n gebarste buis-swangerskap. Die ander 40% kan enige moontlike diagnose omvat. Die regte diagnose word gewoonlik eers by laparotomie gemaak. Somtyds word die diagnose by operasie as bloeding van 'n gebarste corpus luteum gemaak en die diagnose van ovariële swangerskap word eers by histologiese ontleding ontdek.[2] Aan hierdie vereistes is voldoen in die geval wat hier gerapporteer word.

BESKRYWING VAN GEVAL

J.M., 'n 23-jarige blanke vrou, is tot die ginekologiese saal te Karl Bremer-hospitaal toegelaat as 'n noodgeval op 21 Augustus 1960. Sy was slegs 4 maande lank getroud. Die pasiënt het gekla dat sy die oggend—agt uur voor toelating—'n skielike baie erge lae buikpyn gekry het net toe sy opstaan. Sy kon nie verder loop nie en het flou gevoel. Haar private geneesheer is ontbied. As gevolg van sy bevindings van buikteerheid en hipotensie (bloeddruk 80/40 mm. Hg.) het hy omnopon gr. $\frac{1}{3}$ toegedien en haar na die hospitaal verwys.

Ginekologiese Geskiedenis

Sy was nog nooit swanger nie. Menstruasie was nog altyd gereeld en normaal. Haar laaste stonde was op 1 Augustus 1960. Hierdie stonde was 4 dae laat en het net 4 in plaas van die gewone 5 dae geduur. Die bloedverlies was ook minder as normaal.

Geen verder punte van belang in die ginekologiese geskiedenis is gevind nie.

Sy het 'n appendisektomie gehad 'n paar jaar gelede.

By Ondersoek

Goed ontwikkelde jong vrou. Sy het pyn gehad en het bleek voorgekom. Het gesweet. Koors was 97·0°F. Haar pols was 72 per minuut en gereeld. Bloeddruk was 110/60 mm. Hg.

Buik. Matige opsetting van die hele buik en sy het dit nie beweeg met asemhaling nie. Die laer buik was baie teer met spierspanning. Geen vry vog kon in die buikholte gedemonstreer word nie.

Genitale ondersoek. Die serviks was effens sagter as normaal. Die uterus was van normale grootte, in anteversie, en na voor verplaas. Daar was uitbulting van die Sak van Douglas. Sy was baie teer met vaginale ondersoek.

Spekulum-ondersoek. Die serviks het effens blou voorgekom met 'n klein erosie rondom die eksterne os.

Bloed. Die hemoglobien was 12·2 g. per 100 ml.

Behandeling. Die pre-operatiewe diagnose van gebarste tubale swangerskap is gestel. Vier pinte verenigbare bloed is verkry en 'n infusie van bloed is begin.

Kolpopunksie is gedoen en ou, donker bloed is verkry. Daar is oorgegaan tot laparotomie en ou bloed en stolsels is in die buik gevind. Daar is gevind dat die uterus en albei buise heeltemal normaal voorkom. Die linkerkantse ovarium het 'n klein follikelsis bevat omtrent 1·5 cm. in deursnee. Die regter ovarium het 'n rou area, 0·75 cm. in deursnit, getoon op die vry oppervlakte reg teenoor die ovariële ligament. Daar was nekrotiese rooigrys weefsel in die area. Op daardie oomblik was daar geen bloeding nie. Dit is verwyder en gestuur vir histologiese ondersoek. Hierna was daar weer bloeding van die rou area. Die gaatjie in die ovarium se kapsel is glad gesny en met atroumatiese chroomdermsnaar No. 00 toegewerk

Sommige van die ou bloed en bloedklonte is verwyder en die buiksnit geheg.

Die pasiënt se toestand was goed toe sy die teater verlaat het. Sy het altesame 2 pinte bloed ontvang. Na die operasie het sy nooit koors gehad nie en sy is op die 9e post-operatiewe dag ontslaan.

Histologie. (Rapport No. P/1638/60). ‚Die monster bestaan uit 'n paar stukkies rooigrys weefsel. Histologie is die van produkte van swangerskap met hidropiese degenerasie van die plasentale weefsel.'

BESPREKING

Patogenese

Die patogenese van ovariële swangerskap is nog nie duidelik nie. Die direkte bevrugting van die ovum in die follikel deur 'n spermatosoë is voor die hand liggend. Nietemin reken sommige outoriteite dat die ovum bevrug word in die buis en dan om die een of ander onverklaarbare rede terugwaarts beweeg sodat inplantasie in die ovarium geskied.

Novak[7] steun hierdie teorie omdat hy glo dat die ovum in die follikel te onvolwasse is om bevrug te word en dat volwassenheid normaalweg eers in die buis bereik word. Hertig en Rock meen dat die ovum in sommige gevalle wel volwassenheid in die follikel kan bereik.

Nog 'n punt waaroor daar geen duidelikheid bestaan nie is die presiese plek in die ovarium waar inplantasie plaasvind. Is dit in die oorspronklike follikel of is dit in die korteks van die ovarium? Aangesien die corpus luteum essensieel is vir inplantasie, voel sommige outoriteite dat inplantasie ekstrafollikulêr moet wees. Hierdie argument word versterk deur die feit dat endometriële weefsel dikwels op die ovarium gevind word (bv. in endometriose) en dat inplantasie dus wel daar kan plaasvind.

'n Baie interessante nuwe verwikkeling is die teorie van partenogenese. Shettler[5] het verdeling in die ovum, wat nog in die follikel was, waargeneem. Hierdie waarneming is gemaak in 3 uit 400 ovaria wat ondersoek is. In hierdie gevalle kon *bevrugting* nie plaasgevind het nie, want die wand van die follikel was nog heel. Shettler het dus tot die gevolgtrekking gekom dat dit 'n voorbeeld van partenogenese was, en dat ovariële swangerskap dus partenogeneties kan ontwikkel. Om dit te probeer bevestig, is die kern-seks van fetale dele in 'n reeks bevestigde ovariële swangerskappe vasgestel. In 12 gevalle wat bestudeer is, was die kern-seks manlik in 7 gevalle en vroulik in 5. Van dié bevinding kon dus afgelei word dat daardie ovariële swangerskappe nie partenogeneties was nie en dat bevrugting ovariële inplantasie van die sigoot moes voorafgegaan het.

Kliniese Diagnose

Die kliniese diagnose van vroeë ovariële swangerskap verskil in geen opsig van die van buis-swangerskap nie. Sowel in simptome, bevindings by ondersoek, en spesiale ondersoeke is die bevindings dieselfde. Die regte diagnose word alleenlik gemaak by laparotomie en dan moet noukeurig opgelet word waar die letsel is, en die swangerskap-sak moet vir histologiese ontleding gestuur word. Heel dikwels word dit verwar met bloeding van 'n corpus luteum wat gebars het.

Prognose

Vyf-en-sewentig persent van ovariële swangerskappe bars spontaan voor die end van die eerste trimester, en 87% voor die einde van die tweede trimester. Voltydse ovariële swangerskap is dus baie seldsaam, maar kom tog wel voor. In sulke gevalle is die fetus dood by geboorte in 67% van gevalle. Van die lewende fetusse is 18% misvormd.

SUMMARY

A case of primary ovarian pregnancy is described, which conformed to the criteria of Spiegelberg.

The incidence, aetiology, diagnosis and prognosis are discussed briefly.

My dank aan dr. R. L. M. Kotzé vir verlof tot publikasie en ook aan prof. J. N. de Villiers, hoof van die Departement van Verloskunde en Ginekologie, Universiteit van Stellenbosch, vir nodige hulp en kritiek.

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A GERONTOLOGICAL STATISTIC*

DAVID PERK, M.D., D.P.M., JOHANNESBURG

The Witwatersrand Jewish Aged Home opened in June 1912, with 12 beds for residents. This represented approximately 1 per 4,000 of the estimated Jewish population of South Africa at that time (*circa* 50,000). In February 1958, when the Home transferred to newly-built premises, it accommodated 100 chronic sick and 125 residents, i.e. a total of 225 persons. By 1960 the number had increased to 240 sick and 220 residents, a total of 460, so that in the 48 years since the establishment of the first Home, the beds for the Jewish aged chronic sick available in this institution have multiplied by more than 40 times. The increase of beds is not only due to a larger population and an extended life-span. There are other factors which influence it.

For one thing, a heightened social conscience with regard to the aged has led to the establishment of the new Home, with double the accommodation it had before. For another, demand for beds, for one reason or another, soon catches up with supply. The accommodation provided in the new Home has won such widespread approval that it has encouraged many an aged person, or his family on his behalf, to seek admission more readily and timeously than previously. The increasing cost of living has also played a part in forcing aged persons, especially if requiring nursing care, to seek accommodation in a Home which gives preferential admission to the indigent. It is possible that the diminished reverence for authority and age that characterizes Western civilization of today may also play a part in the impetus behind the establishment and expansion of aged Homes that is being witnessed. The result of the factors mentioned has been that the new Jewish Aged Home has reached saturation earlier than was expected. It is easier to recognize the factors that have operated to fill the Home to capacity in retrospect than it was to anticipate them, and, even with clear anticipation, there are limits to which the present generation can be burdened with responsibilities that must belong, in some measure at any rate, to future generations.

The Jewish community of South Africa probably has a higher proportion of aged than the non-Jewish community. Of the total White population of the Union, according to the 1951 census, 6·5% were 65 years of age and over. The reason for the disparity in the ratio of aged to the total population of the Jewish and non-Jewish communities is largely that the Jewish community is now reaping the harvest of the wave of immigration from Eastern Europe, of youths in their teens and men and women in more mature years, that occurred in the years before World War I. In Table I it will be seen

* Chairman's address to members of the honorary medical, dental and pharmaceutical panel of the Witwatersrand Jewish Aged Home, Johannesburg, on the occasion of the Eighth Annual Meeting of the Panel held on 14 August 1960.

TABLE I. COUNTRY OF ORIGIN OF APPLICANTS

Country	*No.*	*%*
Russia (pre-World War I)	155	77·5
England	16	8
South Africa	14	7
Germany	9	4·5
Austria	2	1
Israel	2	1
United States of America	1	0·5
Not stated	1	0·5
Total	200	100·0

that nearly 80% of the applicants for admission to the Home were born in Russia before World War I.

In looking back upon developments which the new Home has experienced since its inception, I am guided by particulars I have kept of applications for admission to the Home, it being my task to review these before they are considered by the lay executive of the Home. Choosing a date approximately nine months after the opening of the new Home (by which time, I considered, the applications held up for lodgment until the opening would have been presented and dealt with) I have analysed 200 consecutive applications filed thereafter. These cover the period from November 1958 to March 1960. The facts and figures set out in the various tables that follow throw indirect light on the composition of the Jewish community in South Africa in the early part of this century and provide an insight into the medical problems that are a by-product of age.

MARITAL STATUS AND SEX

Roughly two-thirds of the applicants are women (Table II). This is no doubt related to the greater longevity of women. A little less than half the male applicants are married; of the women only about one quarter are married. A quarter of the

TABLE II. MARITAL STATUS AND SEX

Status	*Male*	*Female*	*Total*	*%*
Widowers	19	88	107	53·5
Married	32	28	60	30
Single	17	9	26	13
Separated and divorced	4	3	7	3·5
Total	72	128	200	100·0

men applying are single, while only a small fraction of the women are single. Of the married men and women, 12 are couples who have not wanted to be separated in old age and illness, and about half the remaining married male and female applicants have sought admission because they could not get adequate nursing care at home. This leaves 9 married men and 7 married women whose applications throw a lurid light on the unhappy fate that awaits some marriages, fortunately very few, with the advance of years.

These 16 sought admission because:

(*a*) The wife, being younger, preferred working to receiving assistance to keep up the home—2 cases;

(*b*) of more specific rejection (withdrawal by wife of second marriage, marital discord, lack of accommodation)—6 cases;

(*c*) the spouse was or felt unfit to look after the applicant—6 cases;

(*d*) of poverty—1 case; and

(*e*) of no stated reason—1 case.

MARITAL STATE, SEX AND DISABILITY

Neuro-psychiatric disturbances occur most frequently in the female single group and bodily disturbance most frequently in the female married group (Table III).

TABLE III. MARITAL STATUS, SEX AND DISABILITY

Sex and status	*Neuro-psychiatric condition*		*Bodily condition*		*Combination of neuro-psychiatric and bodily condition*		*Not stated*	
	No.	*%*	*No.*	*%*	*No.*	*%*	*No.*	*%*
Male married	7	22	9	28	6	19	10	31
Male single	4	23	6	35	2	12	5	30
Male widowed and divorced	3	13	10	44	3	13	7	30
Female married	4	14	13	47	7	25	4	14
Female single	4	44·5	1	11	4	44·5		
Female widowed and divorced	28	31	23	25	28	31	12	13

AGES OF APPLICANTS

Two-thirds of the applicants are 70 years and over, and about one quarter are 60—69. The single and divorced group constitute half of the under-60s and diminish to about $\frac{1}{8}$ of the over-70s. It is the reverse with the widowed group; they are a third of the under-60s and three-fifths of the over-70s. The number of married applicants is higher in the 60—69 group than in the other 2 age groups (Table IV).

TABLE IV. AGE DISTRIBUTION

	Under 60		*60 - 69*		*70 and over*	
	No.	*%*	*No.*	*%*	*No.*	*%*
Married	2	17	21	39	37	27
Widowed	4	33	23	43	80	60
Single and divorced	6	50	10	18	17	13
Total	12	100	54	100	134	100
% of total applicants	6		27		67	

Two-thirds of the under-60 applicants have a psychiatric disability. The youngest applicant was 43 years of age; she was a patient in the Witrand Institution.

ORIGINS OF APPLICATIONS

Five of the applications come from patients in mental hospitals, 1 from a mentally defective institution, 1 from a tuberculosis hospital, 3 from another Aged Home, 4 from psychiatric nursing homes and 24 from general hospitals. It seems fairly clear that the general hospitals have discovered a channel of disposal of the aged Jewish patients who have become invalids following an illness or injury which brought them to hospital. It means that the Home is being called upon to undertake the care of patients at a stage earlier than was the custom previously, with a resulting unexpected additional burden on its medical and nursing staff and on its finances.

AILMENTS OF APPLICANTS

Of the applicants, 31% of the males and 16% of the females, had no declared disability, either neuro-psychiatric or affecting other systems. These applicants required, in the main, either care or accommodation and company, and the male preponderance reflects the lesser ability of the senescent male to fend for himself as compared with the female. Neuro-psychiatric conditions occur twice as frequently in the female (60%) as in the male applicants (30%). Depression, senility and dementia are more common in female than male applicants (Table V). There is no significant difference between the sexes regarding other conditions. The frequency with which the more common

TABLE V. NEURO-PSYCHIATRIC CONDITIONS OF APPLICANTS

	Female		*Male*	
	No.	*%*	*No.*	*%*
None stated	53	41	48	67
1. Confused reaction of the aged	20	16	8	11
2. Vascular lesions of brain, including premonitory symptoms, such as vertigo and blackouts, and paralytic sequels	15	12	9	12·5
3. Depressions (including agitation and suicidal attempts)	12	9	1	1
4. Senility	12	9	4	5·5
5. Dementia	8	6	2	3
6. Parkinsonism	6	5	5	7
7. Psychoneurosis	5	4	0	0
8. Paranoid state	4	3	0	0
9. Mental retardation	3	0	0	0
10. Paraplegia	1	0·8	0	0
11. Epilepsy	1	0·8	0	0
12. Cerebral palsy	0	0	1	1
13. Hypertensive encephalopathy	1	0·8	0	0
14. Undiagnosed psychiatric conditions	1	0·8	0	0

neuro-psychiatric conditions are mentioned in the applications pursues the following descending order (the figures given in brackets are percentages): Confusional reaction of the aged (14), vascular lesions of brain, including premonitory symptoms (12), senility (8), depression (6·5), Parkinsonism (6·5), and dementia (5).

Each application is accompanied by a medical questionnaire which is completed by the private medical attendant of the applicant. The information supplied by these questionnaires is, generally speaking, sparse, but it has the merit of highlighting the outstanding clinical features presented and a number of clinical entities, which are solely nosographic, are as a consequence readily discernible. Several of the diagnostic labels I have appended to these entities call for definition. Confusional reaction of the aged is a temporary, usually recurrent condition, showing disorientation, impairment of memory, emotional lability, a tendency to paranoid misconceptions and misconstructions, restlessness and noisiness frequently more pronounced nocturnally, and a tendency to wandering from home. Senility is a chronic, unremitting condition manifesting impaired memory, emotional lability, personality disorganization and physical feebleness less severe than dementia.

Bodily disturbances are about 2½ times more frequent in

the female (72%) than the male applicant (29%). Hypertension and arthritis figure significantly more commonly in the case of female applicants (Table VI).

TABLE VI. BODILY AILMENTS OF APPLICANTS

	Female		Male	
	No.	%	*No.*	%
None stated	36	50	51	40
Hypertension	26	20	1	1
Cardiac conditions	17	13	8	11
Diabetes	17	13	7	10
Malignancy	9	7	6	8
Reduction of vision or hearing (from all causes)	8	6	6	8
Arthritis and osteoporosis	7	5·5	1	1
Fracture of neck of femur and residual disabilities	6	5	0	0
Disease of respiratory system	5	4	0	0
Hernia (abdominal, inguinal or hiatus)	3	2	2	3
Prostate trouble	0	0	7	10
Varicose veins, thrombosis, ulceration	2	1·5	2	3
Bedsore	0	0	3	4
Alcoholism	0	0	1	1
Peptic ulcer	1	0·8	1	1
Peripheral neuritis	1	0·8	1	1
Other conditions	9	7	1	1

Bodily ailments show the following incidence in the applications (the figures in brackets are percentages): hypertension (13·5), cardiac conditions (12·5), diabetes (12), malignancy (7·5), reduced vision and hearing (7), disease of the respiratory system (4·5), arthritis and osteoporosis (4), prostate troubles (3·5), and fracture of the femur (3). Other conditions occur infrequently.

Of the applicants, 8% have more than 1 neuro-psychiatric disability and 10% more than 1 bodily disability. Parkinsonism is associated with each of the following—confusion, senility, dementia and depression; hemiplegia with confusion, depression and cerebral tumour; dementia with confusion and depression; senility with confusion; and paranoid state with depression. Hypertension is associated in most instances with diabetes, confusion or hemiplegia, and in single instances with senility, dementia, encephalopathy and hysteria. Diabetes is associated with a psychiatric state in 20%, with hypertension in 16%, with cardiovascular conditions in 13% and with complications of diabetes (gangrene, retinitis, bedsore, peripheral neuritis) in about 20%. The association with other conditions, by comparison with the foregoing, appears fortuitous.

Of the 200 applicants, 99 have a neuro-psychiatric disability, 113 a disability in other parts of the body, and 50 a combination of both.

STATE ON ADMISSION

Of the 200 applicants, 41 required care in bed on admission because of either sickness or a degree of enfeeblement which rendered them virtually helpless out of bed. The following conditions reduced them to bed care on admission: coronary thrombosis and congestive cardiac failure, 13; cerebral thrombosis and hemiplegia, 8; senility and dementia, 8; diabetes and complications, 4; malignancy, 3; orthopaedic disabilities, 2; respiratory disorders, 2; and hypertension, 1.

REASONS FOR ADMISSION

The reasons for seeking admission fall into a number of categories and speak for themselves. They are:

1. Need for (*a*) nursing care of a bodily condition that domestic or financial circumstances make it impossible to provide at home, and (*b*) company and nursing care of a bodily condition, in instances of social isolation, 116 (58%).

2. Hospitalization for a neuro-psychiatric condition, where nursing care is secondary to the need for hospital domiciliary care, 61 (30·5%).

3. Need for (*a*) accommodation and (*b*) support, 9 (4·5%).

4. To be with a spouse or, in 1 instance, a mother who needed admission under 1 and 2 above, 5 (2·5%).

5. Marital discord, 4 (2·0%).

6. Sundry (pulmonary tuberculosis, a period of rest from nursing an ailing spouse, vaguely stated), 5 (2·5%).

It will be seen from the above that little short of a third of the applicants present psychiatric problems calling for psychiatric beds and psychiatric care. Of the applications 80·5% were recommended for admission by the medical advisory committee (the lay executive makes the final decision); 10% for admission, subject to an undertaking signed by a member of the applicant's family to remove the patient if found unsuitable for the Home; 2% for admission on special conditions; and 7·5% to be refused admission. There were various reasons for recommending the rejection of certain applications. They were:

1. Unsuitable psychiatric cases, already hospitalized, 5.

2. Unsuitable psychiatric cases, not hospitalized (epilepsy with confusion, 1; simple-minded spastic, 1; disturbed paranoid dementia, 1), 3.

3. Inadequate medical grounds for admission (uncomplicated hypertension in a person of 63 years of age, 1; hysteria in a person of 55, 2; open tuberculosis of lung, 1; person of 57 with no disability, 1), 4.

4. No medical grounds for admission (marital discord, 2; others 1) 3.

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OFFICIAL ANNOUNCEMENTS : AMPTELIKE AANKONDIGINGS

APPROVED MEDICAL AID SOCIETIES

The following is the list of approved medical aid societies as at 1 May 1961. Members should keep this list for reference.

L. M. Marchand
Associate Secretary

28 Plaza Building
Pretoria
25 April 1961

1. A.A. Mutual Medical Aid Society, P.O. Box 9595, Johannesburg.
2. Abercom Group Sick Benefit Society, P.O. Box 494, Port Elizabeth.
3. African Cables Medical Benefit Fund, P.O. Box 172, Vereeniging.
4. African Explosives Medical Aid Society, P.O. Box 1122, Johannesburg.
5. African Oxygen Limited Medical Aid Society, P.O. Box 5404, Johannesburg.
6. Afrikaanse Pers Beperk se Siektefonds, Posbus 845, Johannesburg.
7. Alex, Aitken & Carter Medical Benefit Society, P.O. Box 2636, Johannesburg.
8. Algoa Medical Aid Society, P.O. Box 369, Port Elizabeth.
9. Alliance Assurance Co. Ltd. Medical Aid Society, P.O. Box 635, Cape Town.
10. Argus Medical Benefit Society (Cape Argus Branch), P.O. Box 56, Cape Town.
11. Argus Medical Benefit Society (Daily News Branch), P.O. Box 1491, Durban.
12. Argus Medical Benefit Society (Star Branch), P.O. Box 1014, Johannesburg.
13. Associated Employers' Medical Aid Society, P.O. Box 7462, Johannesburg.
14. A.T.I. Medical Aid Society, P.O. Box 5057, Boksburg North.
15. Babcock and Wilcox Medical Aid Fund, P.O. Box 545, Vereeniging.
16. Bakers Ltd. European Employees' Sick Benefit Fund, P.O. Box 692, Durban.
17. Bloemfontein Municipal Employees' Medical Aid Society, P.O. Box 288, Bloemfontein.
18. Boart and Hard Metal Products Medical Aid Society, P.O. Box 9325, Johannesburg.
19. Boksburg Municipal Employees' Medical Aid Fund, P.O Box 215, Boksburg.
20. Bothner Group Medical Aid Society, P.O. Box 3008, Johannesburg.
21. British General Electric Co. (Pty.) Ltd., Medical Aid Society, P.O. Box 9329, Johannesburg.
22. Broderick Medical Aid Society, P.O. Box 186, Vereeniging.
23. Building Societies Joint Medical Aid Fund, P.O. Box 5728, Johannesburg.
24. Bunzl Paper (S.A.) Medical Aid Society, P.O. Box 2, Maitland, C.P.
25. S. Butcher & Sons Ltd. Medical Aid Society, P.O. Box 1004, Durban.
26. Cape Portland Medical Aid Society, P.O. Box 1067, Cape Town.
27. Cape Times Medical Aid Society, P.O. Box 11, Cape Town.
28. Cape Town Municipal Employees' Association Medical Aid Society, P.O. Box 1939, Cape Town.
29. Central News Agency Ltd. Medical Benefit Society, P.O. Box 1033, Johannesburg (excluding Cape Town and suburbs, Durban municipal area, Johannesburg and Witwatersrand, and Port Elizabeth and Pretoria municipal areas).
30. Chamber of Mines Medical Aid Society, P.O. Box 809, Johannesburg.
31. Civil Service Medical Benefit Association, P.O. Box 176, Pretoria.
32. Commercial and Industrial Medical Aid Society, P.O. Box 958, Johannesburg.
33. Consolidated Glassworks Limited Medical Aid and Sick Benefit Society, P.O. Box 562, Germiston.

GOEDGEKEURDE MEDIESE HULPVERENIGINGS

Hieronder verskyn die lys van goedgekeurde mediese hulpverenigings soos op 1 Mei 1961. Lede behoort hierdie lys vir naslaandoeleindes byderhand te hou.

L. M. Marchand
Medesekretaris

Plaza-gebou 28
Pretoria
25 April 1961

34. Corner House Medical Aid Fund, P.O. Box 1056, Johannesburg.
35. Coronation Medical Aid Society, P.O. Box 1517, Durban.
36. Crooks Bros. Ltd. Medical Benefit Fund, 301 Smith Street, Durban.
37. D.F.A. Medical Benefit Society, P.O. Box 610, Kimberley.
38. D.I.S.W. Medical Aid Society, P.O. Box 290, Benoni.
39. Dorman Long (P.E.) Medical Aid Society, P.O. Box 9010, Port Elizabeth.
40. Eastern Province Cement Co. Ltd. Medical Aid Society, P.O. Box 2016, Port Elizabeth.
41. E.P. Newspapers Medical Aid Society, P.O. Box 1117, Port Elizabeth.
42. Egnep Medical Aid Society, P.O. Penge, Transvaal.
43. Escom Cape Western Undertaking Medical Aid Society, P.O. Box 117, Cape Town.
44. Escom (N.C.U.) Medical Benefit Society, P.O. Box 30, Colenso, Natal.
45. Escom (N.S.U.) Medical Aid Society, P.O. Box 2408, Durban.
46. Everite Medical Aid Society, P.O. Kliprivier, Transvaal.
47. Federated Employers' Medical Aid Society, P.O. Box 666, Johannesburg.
48. Federation of Master Printers of S.A. Medical Aid Society P.O. Box 4465, Johannesburg.
49. First Electric Medical Aid Fund, P.O. Box 3961, Johannesburg.
50. Friend Medical Aid Fund, P.O. Box 245, Bloemfontein.
51. General Mining (Associated Companies) Medical Aid Society, P.O. Box 1007, Johannesburg.
52. General Motors Medical Aid Scheme, P.O. Box 1137, Port Elizabeth.
53. Germiston Industries Medical Aid Society, 113 Pylon House, Human Street, Germiston.
54. Gledhow-Chaka's Kraal Sugar Co. Ltd. Medical Benefits Fund, P.O. Box 55, Stanger, Natal.
55. Goldby, Panchaud and Webber Medical Benefit Fund, P.O. Box 1172, Johannesburg.
56. Goldfields Medical Aid Fund, P.O. Box 1167, Johannesburg.
57. Greatermans Medical Aid Society, P.O. Box 5460, Johannesburg.
58. Homes Trust Sick Fund, P.O. Box 93, Cape Town.
59. Hubert Davies Johannesburg Staff Medical Aid Society, P.O. Box 1386, Johannesburg.
60. Sir J. L. Hulett & Sons Ltd. Medical Benefit Fund, P.O. Box 248, Durban.
61. Hunt, Leuchars & Hepburn Ltd. (Transvaal Staff) Medical Aid Society, P.O. Box 47, Johannesburg.
62. I.C.T. Medical Aid Society, P.O. Box 7018, Johannesburg.
63. Irvine Chapman Medical Aid Scheme, P.O. Box 316, Vereeniging.
64. Iscor Medical Benefit Fund, P.O. Box 450, Pretoria.
65. I.W.S. Medical Aid Society, P.O. Box 6946, Johannesburg.
66. J. W. Jagger & Co. Ltd. Medical Aid Society, P.O. Box 726, Cape Town.
67. Johannesburg Board of Executors' Medical Aid Society, P.O. Box 271, Johannesburg.
68. Klerksdorp Munisipale Werknemers Siektefonds, Posbus 99, Klerksdorp.
69. K. & L. Timbers Ltd. Staff Medical Aid Fund, P.O. Box 9, Elandsfontein, Transvaal.
70. Koegas Medical Aid Society, P.O. Koegasbridge, C.P.
71. Krantzberg Mines Medical Aid Society, P.O. Box 18, Omaruru, S.W.A.

72. Kroonstad Munisipale Mediese Hulpvereniging, Posbus 302, Kroonstad.
73. Legal and General Medical Aid Society, P.O. Box 4870, Johannesburg.
74. Mail, Times & Express Medical Aid Society, P.O. Box 1138, Johannesburg.
75. Marley Floor Tile Medical Aid Society, P.O. Box 67, Nigel.
76. Masonite Medical Aid Society, P.O. Box 57, Estcourt, Natal.
77. Max Engineering Medical Aid Scheme, P.O. Box 174, Vereeniging.
78. Metal Box Company of S.A. Ltd. Medical Aid Society, P.O. Box 7752, Johannesburg.
79. Municipal Employees' Medical Aid Society (Durban), P.O. Box 625, Durban.
80. Natal Building Society Medical Aid Fund, P.O. Box 947, Durban.
81. Natal Coal Owners' (Durban Staff) Medical Aid Society, P.O. Box 281, Durban.
82. Natal Estates Sick Fund Benefit Society, P.O. Mount Edgecombe, Natal.
83. Natal Industries Medical Aid Society, P.O. Box 1300, Durban.
84. N.T.E. Staff Medical Aid Fund, P.O. Box 39, Pietermaritzburg.
85. National Industrial Credit Corporation Medical Aid Society, P.O. Box 8296, Johannesburg.
86. National Portland Medical Aid Society, P.O. Box 21, Claremont, C.P.
87. National Trading Medical Aid Society, P.O. Box 2762, Johannesburg.
88. Northern Assurance Co. Ltd. Medical Aid Society, P.O. Box 8615, Johannesburg.
89. Northern Medical Aid Society, P.O. Box 3437, Johannesburg.
90. Northern Rhodesia European Civil Servants, Medical Aid Society, P.O. Box R.W. 13, Ridgeway, N.R.
91. Norwich Union Life Insurance Staff Medical Aid Society, P.O. Box 1226, Cape Town.
92. Ore & Metal Medical Aid Society, P.O. Box 3548, Johannesburg.
93. Pietermaritzburg Chamber of Industries Medical Aid Society, P.O. Box 365, Pietermaritzburg.
94. Pilkington Group European Medical Aid Society, P.O.Box 111, Springs.
95. Pongola Sugar Milling Co. Ltd. Medical Benefit Fund, P.O. Box 194, Durban.
96. Post Office Medical Aid Society, P.O. Box 303, Germiston.
97. Pretoria Municipal Employees' Sick Fund, P.O. Box 408, Pretoria.
98. Pretoria News Medical Benefit Society, P.O. Box 439, Pretoria.
99. Pretoria Portland Cement Co. Ltd. No. 1 Works (Hercules) Medical Aid Society, P.O. Box 405, Pretoria.
100. Pretoria Portland Cement Co. Ltd. No. 2 Works Medical Benefit Society, P.O. Box 7, Slurry, Western Transvaal.
101. Pretoria Portland Cement Co. Ltd. No. 3 Works (Jupiter) Medical Aid Society, P.O. Box 73, Cleveland, Transvaal.
102. Pretoria Portland Cement Co. Ltd. No. 4 Works Medical Aid Society, P.O. Box 26, Orkney, district Klerksdorp.
103. Printing Industry Medical Aid Society, P.O. Box 1993, Pretoria.
104. Prudential Medical Aid Scheme, P.O. Box 1097, Johannesburg.
105. Rand Water Board Sick Fund, P.O. Box 1127, Johannesburg.
106. Randles Bros. & Hudson Ltd. (Durban) Sick Benefit Fund, P.O. Box 1046, Durban.
107. Randles Bros. & Hudson Ltd. (Johannesburg) Employees' Sick Benefit Fund, P.O. Box 2678, Johannesburg.
108. 'Rennie' and 'The Consolidated' Employees' Medical Aid Fund, P.O. Box 1006, Durban.
109. Reunert and Lenz Ltd. Medical Aid Society, P.O. Box 92, Johannesburg.
110. Reynolds Bros. Ltd. Medical Benefits Fund, 301 Smith Street, Durban.
111. E. S. & A. Robinson (Pty.) Ltd. Medical Aid Society, P.O. Box 293, Germiston.
112. Royal-Globe Medical Aid Fund, P.O. Box 83, Cape Town.
113. Safim Medical Aid Society, P.O. Box 233, Vereeniging.
114. Safmarine Medical Aid Society, P.O. Box 2171, Cape Town.
115. Safnit Mills Medical Aid Fund, P.O. Box 11, Jeppestown, Johannesburg.
116. SANLAM Kantoorpersoneel Siektefonds (alle takke), Posbus 1, Sanlamhof, K.P.
117. SANTAM Onderlinge Mediese Hulpvereniging, Posbus 653, Kaapstad.
118. Shell Medical Aid Society (S.A.), P.O. Box 2231, Cape Town.
119. S.A. Breweries Medical Aid Society, P.O. Box 1099, Johannesburg.
120. S.A.K.A.V. Sick Benefit Fund, P.O. Box 33, Paarl.
121. S.A. Mutual Fire & General Insurance Co. Ltd. Staff Medical Aid Fund, P.O. Box 516, Johannesburg.
122. S.A. Mutual Life Assurance Society Staff Medical Aid Fund, P.O. Box 66, Cape Town.
123. S.A. National Sickness & Accident Insurance Co. Ltd (SANSOM), Box 25, Sanlamhof, C.P.
124. S.A. Press Association Medical Aid Society, P.O. Box 7766, Johannesburg.
125. S.A. Pulp & Paper Industries Medical Benefit Fund, Tugela Mill, P.O. Mandini, Zululand.
126. S.A. Sugar Association Medical Benefits Fund, P.O. Box 2160, Durban.
127. S.A. Teachers' Association Medical Aid Society, 12 Bellevue Road, Sea Point, C.P.
128. S.A. Torbanite (Boksburg) Medical Aid Society, P.O. Box 5083, Boksburg North.
129. South Atlantic Corporation Medical Aid Society, P.O. Box 1628, Cape Town.
130. Southern Medical Aid Society, P.O. Box 42, Cape Town.
131. Springs Industrial Benefit Society, P.O. Box 554, Springs.
132. Steeldale and Union Joinery Medical Aid Society, P.O. Box 1210, Johannesburg.
133. Sun Insurance Office Ltd. Staff Medical Aid Fund, P.O. Box 429, Johannesburg.
134. Sydmore Sick Benefit Society, P.O. Box 8851, Johannesburg.
135. Syfrets' Medical Aid Society, 24 Wale Street, Cape Town.
136. Traduna Medical Aid Fund, P.O. Box 8791, Johannesburg.
137. Transvaal Corundum Associated Asbestos Medical Aid Society, P.O. Box 72, Pietersburg, Transvaal.
138. Transvaal Society of Accountants Medical Aid Fund, P.O. Box 2995, Johannesburg.
139. U.L.A. Medical Aid Society, P.O. Box 4589, Johannesburg.
140. Umzimkulu Sugar Co. Ltd. Medical Aid Fund, P.O. Box 43, Durban.
141. United Banks' Medical Aid Society, P.O. Box 1242, Cape Town.
142. United Building Society Medical Aid Fund, P.O. Box 7735, Johannesburg.
143. University of the Witwatersrand (Johannesburg) Staff Medical Aid Fund, Milner Park, Johannesburg.
144. Village Board of Management of Welkom Medical Aid Society, P.O. Box 708, Welkom, O.F.S.
145. Wright, Boag & Head, Wrightson Sick Benefit Fund, P.O. Box 183, Benoni.
146. Yorkshire Medical Aid Society, P.O. Box 2755, Johannesburg.

MEDICAL BENEFIT SOCIETIES WHICH ALLOW FREE CHOICE OF DOCTOR FOR SPECIALIST SERVICES ONLY

MEDIESE BYSTANDSVERENIGINGS WAT VRY KEUSE VAN DOKTER ALLEEN VIR SPESIALISTEDIENSTE TOELAAT

1. Brakpan Power Station Sick Benefit Society, P.O. Box 1, Brakpan.
2. Breyten Coalfields Benefit Society, P.O. Box 6, Estantia, Transvaal.
3. Broken Hill Mine Employees' Medical Specialist Fund, P.O. Box 45, Broken Hill.
4. De Beers Consolidated Mines Limited Benefit Society, P.O. Box 616, Kimberley.
5. Durban Roodepoort Deep Ltd, Benefit Society, P.O. Box 193, Roodepoort.
6. Jagersfontein Mine Benefit Society, P.O. Box 2, Jagersfontein, O.F.S.
7. Krugersdorp Municipal Employees, Medical Benefit Society, P.O. Box 101, Krugersdorp.
8. Northern Rhodesia Mine Employees' Medical Specialist Fund, P.O. Box 134, Kitwe, N.R.
9. Public Utility Transport Corporation Sick Fund, P.O. Box 9571, Johannesburg.
10. Randfontein Estates Employees' Sick Benefit Society, P.O. Box 37, Randfontein.
11. Roodepoort-Maraisburg Municipal Employees' Sick Benefit Society, P.O. Box 217, Roodepoort.
12. Roodepoort-Maraisburg Non-Scheduled Mines and Industries' Benefit Society, P.O. Box 225, Roodepoort.
13. Rosherville-Maraisburg Benefit Society, P.O. Box 99, Cleveland, Johannesburg.
14. Sasol Medical Benefit Society, P.O. Box 80, Sasolburg.
15. Simmer Pan Medical Society, P.O. Box 103, Germiston.
16. Springs Mines Benefit Society, P.O. Box 54, Springs.
17. Tongaat Sugar Company Medical Benefit Scheme, P.O. Box 5, Maidstone, Natal.
18. Transvaal Jewellers' & Goldsmiths' Sick Benefit Fund, P.O. Box 8530, Johannesburg.
19. Tweefontein Colliery Employees' Benefit Society, Tweefontein Colliery, P.O. Coalville, Transvaal.
20. Western Province Building & Allied Trades Sick Fund, P.O. Box 2013, Cape Town.
21. Witbank Coalfields Benefit Society, P.O. Box 26, Witbank.
22. Witbank Power Station Medical Benefit Society, P.O. Box 197, Witbank.

TARIFF OF FEES FOR APPROVED MEDICAL AID SOCIETIES

After negotiation with the medical aid societies, the following amendments to the Tariff were agreed upon and have been confirmed by the Executive Committee of the Federal Council.

The amended Tariff comes into operation on the 1st June 1961.

L. M. Marchand
Associate Secretary

28 Plaza Building
Pretoria
27 April 1961

1. GENERAL RULES GOVERNING THE TARIFF

(*a*) *Clause* 1. The fee for examination of a dependant must be changed to R1.50.

(*b*) *Clause* 12 should read:

'Approved medical aid societies may refer to the respective Branch of the Association any cases about which they are in doubt, *after reference to the doctor concerned, should it still be necessary*.'

2. SECTION 'A'—ANAESTHETICS

(A) In the fifth paragraph at the heading of the section, the last words 'and the patient' should read 'and/or the patient'.

(B) *Item* 4. Delete present item and substitute the following therefor:

'4. *Anaesthesia for special types of surgery and anaesthesia involving special techniques:*

(*a*) *Anaesthesia for neurosurgical cases:*

Per hour or part thereof up to 2 hours, R12.60.
Thereafter for every 10 minutes or part thereof, R2.10.
With a maximum of R75.60.
Anaesthesia for angiography is not to be classified under this tariff, but items 1, 2, 3 above are applicable.

(*b*) *Anaesthesia for all intracardiac and for all intrathoracic vascular surgery:*

Up to 2½ hours a minimum fee of R31.50.
Thereafter for every 10 minutes of part thereof, R2.10.

(c) (*i*) *Anaesthesia for all other intrathoracic operations:*

Per hour or part thereof up to 2 hours, R12.60.
Thereafter for every 10 minutes or part thereof, R2.10.

(*ii*) *Anaesthesia for bronchography and/or bronchoscopy:*

Up to 1 hour, R12.60.
Thereafter for every 10 minutes or part thereof, R2.10.'

(C) *Item* 5 to read as follows:

'Assistant anaesthetist—who may be employed only for major cardiovascular and neurosurgery:
For the first hour, R6.30.
Thereafter for every 10 minutes, R1.05.'

3. SECTION 'C'—DERMATOLOGY

The second last sentence in the NOTE at the end of the Section to read:

'Where the fee for a procedure or operation is R10.50 or more, no initial consultation fee will be charged.'

TARIEF VIR GOEDGEKEURDE MEDIESE HULPVERENIGINGS

Na onderhandelinge met die mediese hulpverenigings, is daar ooreengekom oor die volgende wysigings van die Tarief. Die wysigings is deur die Uitvoerende Komitee van die Federale Raad bekragtig en tree op 1 Junie 1961 in werking.

L. M. Marchand
Medesekretaris

Plaza-gebou 28
Pretoria
27 April 1961

4. SECTION 'D'—GENERAL PRACTICE

(*a*) Amend each fee listed in items 1, 2 and 4 by the addition of 25c.

(*b*) The following definition to be inserted after Item 1(*b*):

'It must be clearly understood that as a general rule only some medical aid societies accept payment of travelling fees and some others only in exceptional cases.

Subject to the above: If a doctor with consulting rooms outside a municipal area visits a patient within a municipal area, he is entitled to the municipal area fee and no mileage. If he visits outside the municipal area he is entitled to the lower fee, plus mileage as specified in the Section.

If a doctor with consulting rooms within a municipal area visits a patient outside a municipal area he is entitled to the municipal area fee plus a travelling fee from the municipal boundary, provided the doctor has already travelled four miles.'

(*c*) A new subsection to be added to Item 4 after the paragraph in brackets in subsection (*b*):

'(*c*) *Attendance outside schedule consulting hours*. When a practitioner is called from his house to his consulting rooms outside scheduled consulting hours the appropriate visiting fee may be charged.'

(*d*) *Item D.*7 to be deleted and the following substituted therefor:

'When more than one patient in the same household is attended for the same condition at the same consultation or visit, the Tariff fee shall be charged for the first patient and 50% of this fee for each additional patient. If attended for *widely* different illnesses a full consultation fee for each patient may be charged at the consulting rooms; in the case of domiciliary visits the Tariff visiting fee shall be charged for the first patient and the consulting room fee for each additional patient.'

(*e*) *Section 'E'—Injections—general practitioners.*

(*i*) Insert the following note after Item 1:

'In a course of injections of vaccine, vitamins, tonics, liver (in and without association with vitamins) and for desensitization, in respect of patients who are not confined to bed, the charge will be the full fee for the first injection and 50% of the fee for subsequent injections.'

(*ii*) Delete Item 3.

The following items 4 and 5 to be numbered 3 and 4 respectively.

(*f*) *Section 'F'—Procedures undertaken by general practitioners:*
Delete the section in the book and substitute the following:

If the procedure is done at the time of the initial consultation, then both the consultation fee and the fee for the procedure is charged for.

If the procedure is done on any occasion other than the initial visit or consultation, then only the fee for the procedure should be charged on that occasion.

1. Diagnostic paracentesis of chest or abdomen, R4.20.
2. Therapeutic paracentesis of chest or abdomen, R4.20.
3. Paracentesis of pericardium, R6.30.
4. Electrocardiogram:
   (*a*) Initial, R3.15.
   (*b*) Repeats, R2.10.
5. Full blood count (erythrocyte, haemoglobin, total and differential):
   (*a*) Initial, R4.20.
   (*b*) Repeats, R2.10.
6. Protein tests for allergy (exclusive of cost of material), R4.20.
7. Lumbar puncture, R6.30.
8. Cisternal puncture, R10.50.
*9. Warts (verrucae)—removal by excision or diathermy, R4.20.
   For each additional wart, R2.10 (with maximum of R16.80.)
*10. Plantar warts—removal by excision or any other method, R8.40.
   For each additional wart, R4.20. (With maximum of R25.20.)
*11. Excision of sebaceous cyst, R5.25.
   For each additional cyst, R2.10.
12. Blood sedimentation rate—regional fee for pathologists.
13. Pneumothorax—first induction, R8.40.
   Subsequent refills (limit 15), R3.15.
*14. Circumcision:
   (*a*) Under six months (no additional fee for anaesthetic when under one month old), R5.00.
   (*b*) Over six months, R15.00.
*15. Tapping hydrocele with or without occlusive drug, R3.15.
*16. Aspiration of bursa, R3.15.
*17. Evacuation of haematoma, R3.15.
*18. Stitching of wound (with or without local anaesthesia)—including normal aftercare, R4.20.
   Exceptional cases to be assessed under Item 9 of the General Rules Governing the Tariff.
19. Diathermy and other electrical treatment—two-thirds of specialist's fee.
*20. Removal of corneal F.B.—including normal aftercare, R4.20.
21. Hormone implantation (exclusive of cost of material), R4.20.
22. Vaccination and other immunizations: per treatment—visit or consultation fee only.
   * No consultation fee to be charged in these cases.
23. Lancing of boils, syringing of ears, replacement of retroverted uterus, aspiration and sclerosing of ganglion and other simple procedures shall be included in the consultation fee.
24. Local anaesthetics are included in the consultation or visiting fee whichever is applicable. Local anaesthetics are included in the fee for these procedures except where specified.
25. Other procedures not listed in this section and carried out by General Practitioners to be charged at two-thirds of the rates for specialists, provided that no fees of R15.00 and less for operative procedures shall be reduced and that no reduced fee shall be less than R15.00 except where otherwise indicated.

5. SECTION 'G'—GYNAECOLOGY

(*a*) Amend Item 8 as follows:
'Vaginal hysterectomy with repair (including posterior colpoperineorrhaphy), R110.00, R74.00'.

(*b*) Add the following item:
'Presacral neurectomy, R60.00, R40.00'.

(*c*) Insert the following note after Item 37:
'The maximum charge for additional procedures done at the time of an intra-abdominal operation shall be R21.00'.

(*d*) Add to the existing note re confinements the following sentence:
'Medical aid societies will not make direct payment to specialists for obstetrical work other than for the items specified in the above schedule'.

6. SECTIONS 'H' AND 'I'—INTERNAL MEDICINE

(*a*) Amend Item H.2(*a*) as follows:
'2. (*a*) (*i*) At consulting rooms, R3.15.
(*ii*) If seen at consulting rooms for the same illness after an interval of not less than 28 days from the last consultation or visit, R4.20.'

(*b*) In Item I.34 delete all words after 'catheterization' and substitute therefor:
'Composite fee (excluding anaesthetic and radiological fees), up to R94.50'.

7. SECTION 'K'—SPECIAL PROCEDURES OF NEUROPSYCHIATRISTS

Delete the paragraph commencing 'It is not usual . . . .' after Item I(*b*) and substitute therefor:
'If psychotherapy is carried out during the course of electroconvulsive therapy, the total charge for the combined therapy shall not exceed R105.00 (see Item 3).'

8. SECTION 'M'—OPHTHALMOLOGY

(*a*) Amend Item 7 as follows:
After the word 'Strabismus' add '(Applies to the operation whether performed on one or both eyes).'
Amend sub-item (*c*) as follows:
(*c*) (*i*) Ptosis by suture only, R40.00, R26.00.
(*ii*) Ptosis by other operation, R80.00, R54.00.'

(*b*) Amend Item 8 as follows:
In sub-items (*a*) and (*b*) change the word 'Repair' to 'Treatment'.
In sub-item (*d*) add the words 'and prosthesis' after the word 'implant' at the end.

(*c*) In Item 11 delete sub-items (*a*) and (*b*) and substitute therefor:
'(*a*) Probing (with or without syringing) per duct, R10.00, R10.00'.
Sub-item (*b*) falls away.

9. SECTION 'N'—ORTHOPAEDICS

To Item 115(*a*) add the words 'or knee'.
Add new Item 115(*d*): 'Debridement of knee R140.00, R94.00'.

10. SECTION 'O'—OTORHINOLARYNGOLOGY

Add additional item to follow Item 41:
'Stapedial Surgery for Otosclerosis other than Item 41, R120.00, R80.00.
If a repeat operation is done within 12 months the fee will be reduced by 50%.'

11. SECTION 'P'—PAEDIATRICS

(*a*) Amend Item P.2(*a*) as follows:
'2. (*a*) (*i*) At consulting rooms, R3.15.
(*ii*) If seen at consulting rooms for the same illness after an interval of not less than 28 days from the last consultation or visit, R4.20'.

(*b*) Add new item:
'Cardiac catheterization: Composite fee (excluding anaesthetic and radiological fees), up to R94.50'.

12. SECTION 'Q'—PHYSICAL MEDICINE

Amend Item B. 2 to read:
'Spinal traction together with other modalities, R2.10'.

13. SECTION 'U'—SURGERY

Add the following new items:

	Specialist R	*General Practitioner* R
Transduodenal sphincterotomy	105.00	70.00
Endarterectomy:		
(*a*) Of aorta	120.00	80.00
(*b*) Of peripheral vessels	80.00	54.00
Foreign Bodies:		
(*a*) F.B. in fingers or lying superficial to the deep fascia or in the back of hand + Consultation Fee	6.30	6.30
(*b*) F.B.'s deep to deep fascia excluding those intraperitoneal	25.00	16.00
(*c*) F.B.'s penetrating into large joints requiring arthrotomy	46.00	30.00
These do not include visceral involvement.		
Olecranon bursa	20.00	15.00
Epigastric hernia	40.00	26.00
Entero-enterostomy, Ileo-transversostomy	80.00	54.00
Recto-sigmoidectomy	100.00	66.00
Pancreas:		
(*a*) Pancreatico-duodenectomy	150.00	100.00
(*b*) Resection of body and tail of pancreas	100.00	66.00
Carotid body tumour	85.00	56.00

14. SECTION 'W'—UROLOGY

Add the following new items:

Trans-urethral biopsy	30.00	20.00
Plastic reconstruction of bladder neck	100.00	66.00
Marshall Marchetti	85.00	56.00
Fulguration of bladder neck and posterior urethra	30.00	20.00
Reconstruction of ectopic bladder—		
(*a*) Initial	130.00	86.00
(*b*) Subsequent	40.00	26.00
Operation of renal cyst	90.00	60.00

15. GENERAL

The words 'up to' should be placed before the fees for the following items:

M.14.
N.3, 4, 38, 91, 95 and 119.
O.18(*b*), 24 and 34.
U.61 and 63.

CORRIGENDA

Kindly amend the relevant items as follows:
Geliewe die betrokke items soos volg te wysig:

Page	*Section and Item*	*Fee*
7.	E.5 (Maximum Fee)	R10.50
10.	H.2(*b*) Insert opposite 1st line (The word 'or' should be on the second line).	R3.15
15.	L.32(*b*) G.P. Fee	R114.00
15.	L.34. G.P. Fee	R114.00
16.	L.35. G.P. Fee	R114.00
16.	L.42. G.P. Fee	R114.00
19.	N.9. G.P. Fee	R34.00
20.	N.55. Specialist Fee	R45.00
22.	N.115(*a*). G.P. Fee	R94.00
24.	O.40. G.P. Fee	R114.00
25.	P.2(*b*). Fee per week	R12.60
30.	S.48. Specialist Fee	R16.80
32.	U.25. G.P. Fee	R114.00
32.	U.30(*b*). G.P. Fee	R114.00
33.	U.46. G.P. Fee	R114.00
38.	W.59. Specialist Fee	R115.00
40.	Y. Specialist Fee for 100 miles	R65.60
40.	Y. The Item 5 at the bottom of the page should be numbered '6'.	

PASSING EVENTS : IN DIE VERBYGAAN

Iron-deficiency and Anaemia. A research unit which will study on a world-wide basis the problem of iron-deficiency anaemia in human beings has been established in the Department of Medicine of the University of the Witwatersrand by the World Health Organization.

The head of the Unit will be Dr. T. H. Bothwell, physician (tutorial) in the department, who described iron-deficiency anaemia as a 'major public-health problem and one of the greatest causes of ill-health and death in under-developed areas throughout the world'.

The unit has been established as a result of a recent visit to Johannesburg by Prof. C. A. Finch, a leading American authority on iron metabolism, who visited a number of countries at the invitation of the World Health Organization to investigate the problem of iron-deficiency anaemia.

As a result of his recommendations, a pilot research programme has been approved whereby four laboratory units are being established—one each in the United States, in Venezuela, in India (New Delhi), and in Johannesburg. The units will work in close collaboration to define the incidence and causation of the disease and then the study will be expanded to include other areas.

'Although iron-deficiency anaemia is not a serious problem in South Africa because of the high iron content of the Bantu diet, its incidence in Central Africa is very high, and it was considered that Johannesburg was the most suitable centre on the African Continent for the analysis of certain tissue specimens which will be sent here from the other three units', Dr. Bothwell said. 'Once the causative factors of the disease in different areas have been determined, an extended research programme will be embarked upon.'

Dr. Bothwell has recently returned from America where he acted as associate professor at the University of Washington Medical School, Seattle, for two months. He also visited Thailand as a guest of the International Atomic Energy Agency, a division of the World Health Organization, at a symposium where he read a paper on 'The application of radio-active isotopes in the study of iron metabolism'.

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The South African Institute for Medical Research, Johannesburg, Staff Scientific Meeting. The next meeting will be held on Monday 29 May at 5.10 p.m. in the Institute Lecture Theatre. Dr. H. S. Sichel will speak on 'Statistics as a tool in medical research'.

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Mr. Walter Phillips, thoracic surgeon, left Cape Town on 5 May for a year's visit overseas, where he will attend various centres at which cardiac surgery is carried out.

The South African Geriatric Society (M.A.S.A.) has been notified that the Federal Council of the Association has approved the formation of the Society as a group within the Association.

The first clinical meeting of the Society will be held at the Cape Jewish Aged Home on Tuesday 6 June at 8 p.m., when the following members of the honorary medical staff of the Home will present geriatric cases: Mr. A. Helfet, Dr. M. Horwitz, Dr. S. Scher, and Mr. W. Silber.

All medical practitioners will be welcome, and are invited by the committee of the Aged Home to stay for refreshments after the meeting.

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Johnson & Johnson Awards for Postgraduate Clinical Study in South Africa: 4 available Fellowships for General Practitioners in 1961. These Awards have been established by a grant from Johnson & Johnson (Pty.) Limited, P.O. Box 727, East London.

The Selection Committee (an entirely independent board of medical practitioners) consists of the following: Prof. S. F. Oosthuizen, Chairman, Prof. H. W. Snyman (Pretoria); Dr. P. F. H. Wagner, Vice-Chairman (East London); Dr. H. A. Shapiro, Hon. Secretary (Johannesburg); Dr. Beck de Villiers (Bloemfontein); and Dr. H. Grant-Whyte (Durban).

Applications are invited from registered *general practitioners* who have been in active practice in South Africa for at least 7 years. The Bursary is intended for postgraduate clinical study and not for medical research. It is available for not less than a 2-month period at any medical school in South Africa. The total value of each Bursary is R600.

The candidate must submit a brief statement of his proposed course of study and indicate the institution at which he intends to undertake it. No payments will be disbursed to the successful applicant until he has satisfied the Selection Committee that he has been accepted for the period of postgraduate study at a South African medical school.

Applications must be made on the prescribed form which is obtainable from the Hon. Secretary, Dr. H. A. Shapiro, Selection Committee, Johnson & Johnson Awards for Postgraduate Clinical Study, P.O. Box 1010, Johannesburg. The closing date for applications is 1 August 1961.

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University of Cape Town and Association of Surgeons of South Africa (M.A.S.A.), Joint Lectures. The next lecture in this series will be held on Wednesday 24 May at 5.30 p.m. in the E-floor Lecture Theatre, Groote Schuur Hospital, Observatory, Cape. Dr. P. Willers will speak on 'Surgical lesions of small intestine'. All members of the Medical Association are welcome to attend this lecture.